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AUTHOR	White, Marilyn Domas, Ed.
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ABSTRACT

This report develops an analytical framework based on systems analysis for evaluating electronic question/answer or AskA services operated by a wide range of types of organizations, including libraries. Version 1.0 of this framework was applied in June 1999 to a selective sample of 11 electronic question/answer services, which cover a range of primary audiences, intended purposes, and sponsoring organizations. All are based in non-library organizations, except for the help desk of the American Memory Project at the Library of Congress. Data gathering consists primarily of World Wide Web site inspection, perusal of policy documents if publicly available, and personal contact via e-mail and/or interviews with service administrators. Contents include "Analyzing Electronic Question/Answer Services: Introduction and Analytical Framework" (Marilyn Domas White) and the following evaluative analyses: "American Memory Historical Collections Help Desk, American Memory Project, Library of Congress" (Eileen Hauser); "Ask-A-Geologist (U.S. Geological Survey, Menlo Park, CA)" (Janet Spikes); "Ask-a-Linguist" (Margaret F. Kondash); "Ask a NASA Scientist!" (Terea L. Aquino); "Ask Dr. Math" (Laura W. Speer); "Ask Dr. Universe" (Kristen Gramer); "Go Ask Alice!" (Vera Welsh); "KidsConnect" (Kathleen Feeney Chappell); "LawGuru.com BBS" (Bryan Fagan); "The Medical Edge's AnswerDoc" (Rich Whitaker); and "ScienceNet" (Jennifer R. Heiland). An appendix contains the original framework; the introductory chapter presents Version 1.1 of the evaluative framework as modified through these applications. (Author/AEF)

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Analyzing Electronic Question/Answer Services: Framework and Evaluations of Selected Services

edited by

Marilyn Domas White, Associate Professor
College of Library and Information Services
University of Maryland
College Park, MD 20742
whitemd@wam.umd.edu

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Abstract

This report develops an analytical framework based on systems analysis for evaluating electronic question/answer or AskA services operated by a wide range of types of organizations, including libraries. Version 1.0 of this framework was applied in June 1999 to a selective sample of eleven electronic question/answer services, which cover a range of primary audiences, intended purposes, and sponsoring organizations. All are based in non-library organizations, except for the help desk of the American Memory Project at the Library of Congress. Data gathering consists primarily of web site inspection, perusal of policy documents if publicly available, and personal contact via e-mail and/or interviews with service administrators.

Contents include: Analyzing Electronic Question/Answer Services: Introduction and Analytical Framework by Marilyn Domas White, and the following evaluative analyses: American Memory Historical Collections Help Desk, American Memory Project, Library of Congress by Eileen Hauser; Ask-A-Geologist (U.S. Geological Field Service, Menlo Park, CA) by Janet Spikes; Ask-a-Linguist by Margaret F. Kondash; Ask a NASA Scientist by Theresa L. Aquino; Ask Dr. Math by Laura W. Speer; Ask Dr. Universe by Kristen Gramer; Go Ask Alice! by Vera Welsh; KidsConnect by Kathleen Feeney Chappell; LawGuru.com BBS by Bryan Fagan; The Medical Edge's AnswerDoc by Rick Whitaker; and ScienceNet by Jennifer R. Heiland. Appendix A contains the original framework; the introductory chapter presents Version 1.1 of the evaluative framework as modified through these applications.

Keywords: Digital libraries; Digital reference service; AskA services; Electronic question and answer services; Evaluations; Evaluative criteria

Analyzing Electronic Question/Answer Services: Introduction and Analytical Framework

by Marilyn Domas White

Introduction and Literature Review

To be responsive to the needs of information seekers operating within digital libraries, reference services are evolving and taking on different forms. They are based in a wide range of organizations, including libraries. They are sometimes oriented to matching people with questions to people with expertise to answer those questions, not just to matching an information need to a textual source with the information. They are responding with information presented through a range of visual and aural media. They are staffed by people with a broad range of education and experience, including, but not limited to, professional librarians. They give the client considerable time and location flexibility in submitting questions; people can ask questions when they experience them and contact the service they consider optimal. And, unfortunately, they are dependent to a large extent on receiving queries through information channels that do not provide the rich visual and aural clues that abound in face-to-face encounters and do not easily accommodate conversations that clarify the information need. The electronic question/answer services discussed in this paper are good examples of the new services that are being developed.

The purpose of this report is to present a framework for analyzing and evaluating electronic question/answer services and to use it to analyze a wide range of electronic question/answer services.

Most of the literature related to individual electronic question/answer services is descriptive, often written by service administrators, and emphasizes procedures and/or policies. See, for example, the case studies included in David Lankes and Abby Kasowitz's *AskA Starter Kit: How to Build and Maintain Digital Reference Services* (1998) (Bennett 1998; Bry 1998; Lynch 1998; Odenwald 1998; Stahl 1998a; Weissman 1998; Williams & Weimar 1998), also Stahl, 1998b. These analyses are useful but do not allow for easy comparisons across services because they do not always contain common elements.

David Lankes' dissertation, *Building and Maintaining Internet Information Services* (1998), on the other hand, applies a common framework to analyze systematically six AskA services serving primarily the K-12 community: Ask a Volcanologist, Ask Dr. Math, Ask Shamu, How Things Work, Mad Scientist Network, National Museum of American Art Reference Desk. Drawing on Holland's performance system of agents (1995) and general systems theory (Bertalanffy 1968), Lankes' framework elicits detectors, rules, and effectors of an agent's performance system. The agent in this context is the electronic question/answer service. Detectors are the "selective sensors used to gather information (Lankes, p. 46)," and effectors are "the services, or interfaces, offered to users and other agents (Lankes, p. 48)."

Other literature is broader and focuses on critical factors affecting digital reference services (See, for example, the papers presented at the Library of Congress

institute, Reference Service in a Digital Age 1998).

Evaluative Analyses

The individual chapters in this report are evaluative analyses of electronic question/answer services prepared by students in LBSC 758, Seminar in Information Access, a course offered in the College of Library and Information Services, University of Maryland, in June 1999.

Services selected

The eleven services examined in the chapters constitute a selective sample of existing services and were purposefully chosen to represent active, ongoing services with some history of service and, if possible, with adequate documentation at their web sites, including policy and/or procedures documents and archives or FAQs that would indicate the nature of the questions and responses. Not all of the services met all of these criteria. All are based in non-library organizations, except for the help desk of the American Memory Collections Project at the Library of Congress. Although several papers examine widely known and reported AskA services such as Ask Dr. Math and KidsConnect, others evaluate services that have received little or no previous attention in the literature. Three services have adults as their primary clientele: Ask-a-Linguist, LawGuru.com BBS, and The Medical Edge's AnswerDoc. Two services, LawGuru.com BBS and AnswerDoc, are clearly intended as public service initiatives for commercial organizations.

Data gathering

The analyses are based on data gathering that occurred between June 3 and June 9, 1999. Data gathering techniques included analysis of the web site, first-hand use of the services, perusal of the archives and/or FAQs, analyses of policy and or administrative documents, and, in many cases, contacts with service administrators. Not all techniques could be used or were used for each service because sometimes elements, such as archives or policy documents, were not publicly available.

To guide data gathering, all of the authors followed the *Framework for Analysis of an Electronic Question/Answer Service*, Version 1.0 (June 4, 1999) (See Appendix A). The latter part of this chapter presents the revised Version 1.1 of this framework, which includes modifications based on insights gained from the analyses presented in this report.

Presentation formats

No guidelines were established for presenting analyses of the different electronic services, so the formats of the individual chapters vary -- some present the information in a narrative form; others follow a question/answer format, with the questions representing points in the framework. In some cases authors' evaluative comments are separate and/or indicated by bolding or by the word "Comments" preceding the section. Yet others interweave critical comments throughout the paper.

Importance of the evaluations and the framework

The value of these evaluations accrues from several factors:

- They follow a common and comprehensive analytical framework, which allows for indicating not only what is available for the service, but also, and perhaps more importantly, what is not available.
- They are both descriptive and critical.
- They encompass both well-known and less well-known or newer services.
- They cover services provided by non-profit organizations as well as services that are public service initiatives for commercial organizations.

Using an analytical framework results in several significant benefits. First, it establishes the basis for noting strengths and weaknesses in existing services. Second, it reveals gaps in coverage or implementation of key elements in electronic question/answer services. Third, although it was not done systematically in this report, a common analytical framework supports comparisons across individual services. A useful outcome of such comparisons is the delineation of models of electronic question/answer services, i.e. standard variations of organizations or operations for these services. Another benefit is the identification of "best practices" for electronic question/answer services.

Framework for Analysis

The original version of the framework was based on systems analysis with the emphasis on identifying key elements associated with client input, the thruput, i.e. the processing of the query by the system, and system output, i.e., communications from the service, usually in the form of responses to queries. In applying the framework, the authors noted the benefits of using it as a guide not only for looking critically at existing systems but also for developing new services.

A modified version, shown in Figure 1, is based on a systems analysis of a generalized electronic question/answer service plus the systematic analyses of the eleven services covered in this report. Questions were added and/or modified to allow for the variants that were noted in these services. In addition, the most logical category for each question was determined and redundancies in the original framework were eliminated. Finally, the order of categories was modified to provide a more coherent approach to the analysis.

The framework includes about 150 questions related to 18 basic categories:

Mission, Objectives, Statement of Purpose
Parameters of Service: Questions
Parameters of Service: Clients

Administration
Staffing and Training
Hardware and Software
Ease of Use, Instructions to the Client
Responsibilities to the Client

Query Form
Acknowledgment
Question Negotiation
Question Answering Process
Response Guidelines
Coping with Demand
Archiving

Quality Control
Evaluation
External Recognition

As grouped above, the first set identifies the purpose of the service, broadly and specifically; the second group identifies the basic administrative structure and the system's responsibilities to the client; the third focuses directly on submitting, receiving, and responding to questions; and the fourth group returns to a broader perspective, looking at monitoring the quality and effectiveness of the service. It should be noted that this order is not the order in the original version and thus not the order that is generally apparent in the individual chapters.

The questions in the framework usually elicit factual information, not judgments. This information in turn establishes the basis for making judgments about the merits of the service as a whole and of the sub-parts of the service. The information reflects management decisions in most cases, and these should be subject to careful scrutiny. In the evaluations included in this report, the authors not only provide

information but also at times express their judgments about the various features of the services.

Figure 1. Framework for Analysis of an Electronic Question/Answer Service
Version 1.1 (July 25, 1999)

1. Mission, Objectives, Statement of Purpose

1.1 What is the name of this service?
1.2 Is the name expressive?
1.3 What is the URL?
1.4 What is the mission/purpose of this service?
1.5 Is the mission/purpose apparent to the client?

2. Parameters of Service: Questions

2.1 What types of questions does this service answer? For example, short-answer questions, factual questions, questions related to a specific subject, unique questions, i.e. those not already in the archive.
2.2 Does the service reject questions? If so, what is the basis for rejection? For example, outside of scope, time limited.
2.3 What limits exist on the service for an individual client? Consider, for example:
- number of questions per message
- number of questions per client
2.4 If questions are not appropriate for the service, are the clients referred elsewhere?

3. Parameters of Service: Clients

3.1 Who are the intended clients? What are their characteristics? Consider, for example, age, gender, affiliation, location.
3.2 Are the intended clients clearly identified at the site?
3.3 If appropriate, is the site clearly oriented to that client group? For example, illustrated accordingly for children, written at an appropriate level.
3.4 Are any categories of clients dissuaded or barred from using the service? For example, scholars in the field for a service oriented to lay persons.
3.5 If clients are not eligible for the service, are they referred elsewhere?

4. Administration

4.1 How is the service funded?
4.2 How does funding/sponsorship influence quality and/or objectivity?
4.3 Is service fee-based? If so, what is the fee structure and how are the fees collected?
4.4 Are there ethical guidelines? For example, guidelines about questions requesting dangerous information. Are they publicly accessible? If so, how easy are they to locate?
4.5 Are there privacy guidelines? Are they publicly accessible? If so, how easy are they to locate?
4.6 How are copyright and fair-use issues managed?
4.7 Are there liability disclaimers and/or content disclaimers?
4.8 What other policy and/or procedure documents are available online? Are they publicly accessible? If so, how easy are they to locate?
4.9 If access is restricted for certain policy and procedural documents, what documents exist and who can access them? For example, some types of documents may only be available to volunteers.
4.10 How is policy decided?
4.11 To what extent are staff involved in policy development?

5. Staffing and Training

5.1 How is the staff organized?
5.2 Who answers the questions? For example, volunteers, in-house staff.
5.3 What level of expertise is required?

5.4 How are answerers recruited and selected?

5.5 What is expected/average time commitment for answerers?

5.6 What training exists for the answerers?

5.7 Are there seniority benefits and/or responsibilities?

5.8 If answerers are staff, how do the Q/A service responsibilities fit into their other responsibilities?

6. Hardware and Software

6.1 Describe the hardware used by this system.

6.2 Describe the software used by this system.

7. Ease of Use, Instructions to Client

7.1 How is the service positioned on the web page in relation to the other services on the site?

7.2 Is it easy or difficult to find? Consider logic of links, name of service.

7.3 Does the web site direct the client to other relevant sources? For example, FAQs, archives, links to other services.

7.4 Is the destination address apparent to the client of a query form?

8. Responsibility to Clients

8.1 What does the service indicate it will provide to the client?

8.2 Does it inform the client about:
- how soon an answer is returned?
- who answers the question? For example, volunteers, professionals, experts, other clients.
- the types/or specific sources it uses?
- the percentage of questions actually answered?

For any of these, where and how?

8.3 Does it explain the question-answering process? Where and how?

8.4 Does the service address client privacy? How?

8.5 Is there a statement of liability/ responsibility/appropriate use (for example, medical, legal information, accuracy)?

8.6 If so, what is included in it?

9. Query Form

9.1 What information is required to answer a question/What must the client provide? For example, name, e-mail address, phone number, question, sources already used, date needed by, grade

9.2 What options are available for submitting a question? For example, e-mail, query form, both.

9.3 What guidance is given on how to ask a question? For example, examples of questions, complete sentences only.

10. Acknowledgment

10.1 What kind of acknowledgment is sent when a query is received, if any?

10.2 How soon is it sent?

10.3 What information does it contain? For example,
- restatement of the question
- expected response time

10.4 Is the acknowledgment generated automatically or with human input?

11. Question Negotiation

11.1 If the question requires clarification, what are the guidelines for clarification? Consider:
- the number of messages needed to clarify the question
- modes to be used for communicating
- any limitations on time

12. Question-Answering Process

12.1 Describe the process a question goes through from receipt to response.

12.2 Do questions accumulate? Where? For how long?

12.3 How are questions prioritized? What criteria are used?

12.4 Are questions assigned or selected by answerers?

12.5 If assigned, who does the assigning?

12.6. On what basis are questions assigned and/or selected by the answerers?

12.7 What is done with questions or clients not matching the service parameters?

12.8 Is the client apprised of actions at critical stages in the answering process? For example, when a question is referred to another answerer after an unsuccessful search.

12.9 If not, how important are these considering
- length of normal response time
- percentage of questions answered

12.10 What are the procedures if an answerer cannot answer the question? Note: May be because he cannot find information, does not have time, etc.

12.11 Who monitors the process to ensure that the system is following procedures and meeting expectations?

13. Response Guidelines

13.1 How is the response generated: form, free writing, or combination of both?

13.2 Does the service use standard language to respond in full or part to questions? If so, for what kinds of questions? If so, solicit examples.

13.3 What are the limitations or constraints on the answers? Consider issues of
- brevity
- fact/judgment
- for bibliographic citations: number and format
- instruction, actual information or both. If the latter, what factors influence the judgment about which to provide?
- level of difficulty
- degree of detail

13.4 Is the original question included with the response? How? For example, repetition of the client's language or re-statement to indicate the answerer's understanding of the query.

13.5 What documentation accompanies the answer, if any?

13.6 How does the service take into consideration factors that may influence choice of answer? Consider as factors, for example, level of knowledge or language skills of client.

13.7 What policy restrictions are there on the sources and contact that can be used to answer the questions, if any?

13.8 Are previous answers available and searchable so that answers can be reused or adapted for other questions?

13.9 What format does the response take: direct e-mail or bulletin board posting?

13.10 Is there a policy on response time for question answers? What is considered the range of acceptable response times?

13.11 What are the policies regarding attaching or referring to non-textual materials?

13.12 How much personalization is allowed in responses?

13.13 Are personal contacts between answerers and questioners allowed or encouraged?

13.14 What is the policy and procedure for referring a question, if any? To whom are referrals made?

13.15 What are the guidelines on the amount of time spent on answering an individual question, if any?

13.16 How does the client request clarification of the answer?
13.17 How does the client request follow-up?
13.18 Who responds to requests for clarification or other follow-ups?
13.19 Is there a policy on response time for clarifications or other follow-ups? What is considered the range of acceptable response times?

14. Coping with Demand

14.1 Are there scheduled down-times?
14.2 How are down-times and other interruptions of service communicated to clients?
14.3 Is there a limit to the number of questions the system can handle? What is that limit?
14.4 What is done if system is inundated by demand? Are there backup staff, is it closed down, is there a delayed response time, are questions not answered, etc.?

15. Archiving

15.1 What is the nature of the archive of questions and answers, if there is one? Consider:
- private/publicly accessible. If private, accessible to whom?
- kinds of information included
- degree of anonymity maintained
- selectivity. If selective, on what basis?
- length of time materials are archived
- purpose of archive

15.2 Are clients allowed to specify if they do not want their question archived?
15.3 How easily accessible is the archive if it is public?
15.4 Is archived indexed and/or searchable? If so, how?
15.5 Is archive selective? By date, or content?
15.6 Is there a FAQ? Is it indexed or searchable?
15.7 How is FAQ related to archive?
15.8 Who manages the archive?

16. Quality Control

16.1 How is quality control maintained? Consider, for example, using standard resources for answering questions (written, people, electronic).
16.2 What happens if quality is considered inadequate?
16.3 Is there a review process for new answerers, for answers? If so, describe it, including:
- who does it
- what standards are applied
- for how long is this done.
- who or what determines when it is no longer necessary

17. Evaluation

17.1 Is there a formal evaluation procedure in place?
17.2 What is the nature of that procedure?
17.3 How frequently does it occur?
17.4 What measures of performance are used? Consider, for example:
- client satisfaction
- accuracy
- time lag
- response rate (percentage of questions answered)

17.5 Is there a regular follow-up with the clients? If so, in every case or in selected cases?
If selected, on what basis are cases selected?
17.6 How does the service determine if it meets mission goals?
17.7 What statistics are maintained by the service regularly? How are they used?

18. External recognition

18.1 What awards has this site received?
18.2 What articles are written about it? If more than five, limit by authority and/or date.

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American Memory Historical Collections Help Desk, American Memory Project, Library of Congress: Evaluative Analysis

by Eileen Hauser

Mission, Objectives, Statement of Purpose

The American Memory Collection is a part of the National Digital Library Program (NDLP) at the Library of Congress (LOC). The multimedia collection includes digitized documents, photographs, sound recordings and moving pictures reflecting the attitudes, perspectives, and beliefs of America from its infancy that would not otherwise be accessible to the public. The exhibitions include digital collections from other institutions as well that complement LOC's own resources.

Since this collection and service are sponsored by the Library of Congress, it is useful to examine the vision of that organization since its foresight set the stage for the NDLP. The Library of Congress is "to make its resources available and useful to Congress and the American people and to sustain and preserve a universal collection of knowledge and creativity for future generations (http://lcweb.loc.gov/ndl/mission.html)." Furthermore, as stated in the published priorities, "the unifying purpose of providing the public with essential library services, such as cataloging and reference help, is to afford as much access to useful information as possible ... (http://lcweb.loc.gov/ndl/mission.html)." To support these priorities, LOC will maintain an infrastructure that will provide and deliver electronic services in order to execute "the Library's mission and priorities with speed, quality, and economy (http//lcweb.loc.gov/ndl/mission.html)."

Aligned with this mission, the National Digital Library Program offers "broad public access to a wide range of historical and cultural documents as a contribution to education and lifelong learning (http: //memory.loc.gov/ammem/dli2/html/lcndlp.html)."

The primary historical documents accessible through the American Memory Collection include over fifty online collections, for example, "Selected Civil War Photographs, 1861-1865," "Baseball from the 1860's to the 1960's," and recording of historical speeches. Competitors from outside agencies all over the country submit their proposals to the NDLP. Annual winners are selected to participate in this collaborative effort. As a result, some of the collections are housed at LOC; others are physically at other host institutions such as a university library, but they are accessible through this unique gateway.

The mission statement of the National Digital Library e-mail reference service has recently been developed (although it is not posted as of June 1999). Its first aim is:

> to provide accurate, timely, on-line assistance for patrons utilizing the American Memory Historical Collections, the Learning Page, and Today in History.

The service also responds to inquiries about the National Digital Library Program. Secondary in the mission is to assist users

in finding the information they need about the Library of Congress collections, programs and services. The third aim, as resources allow, is to assist patrons in identifying information resources outside the National Digital Library and the American Memory Historical Collections that assist them in finding the information they need (Interview with service administrator, June 1999).

Ease of Use

Accordingly, the name of the digital reference service attached to this collection is the American Memory Historical Collections Help Desk, and this service deals specifically with questions about the American Memory collections. The availability of this service is not advertised nor displayed prominently on the front pages of the American Memory Collection web pages; in fact, it is a bit hidden. There are several steps that a user must take to gain access to the e-mail reference service:

1. A user first links to the URL for American Memory (http//www.loc.gov/ammem.
2. To gain access to the e-mail reference service, a first time user must link to American Memory Help Desk at (http//memory.loc.gov/ammem/helpdesk); the link is at the bottom of the page.
3. The user is then linked to the FAQ page (http//memory.loc.gov/ammem/helpdesk/amfaq.html).
4. The final question in the FAQ list will prompt a link to the e-mail reference form (http//memory.loc.gov/ammem/helpdesk/amform.html)

The procedure of taking the patron through these sites was instituted about eight months ago to help the user understand the limitations of the service before asking a question. It also eliminated much of the site's "spam" because the e-mail address itself is not listed as the link. The words American Memory Help Desk serve as the words on this link (except from the Learning Page.) Unfortunately, from the users' point of view, these numerous steps all but discourage the user from realizing that they have access to an on-line reference service.

Parameters of Service

Currently, there is no written policy defining parameters of this e-mail reference service. Instead there are unwritten "generally agreed upon criteria (Interview with service administrator, June 1999)" to guide the librarians in staffing this service. These mental guidelines are similar to the parameters posted under "Guidelines for Researchers" which describe the scope of the LOC reference service in general(http//lcweb.loc.gov/rr/refcorr.html)

The policy of the LOC is to encourage correspondents to use local libraries first, such as public, state, academic and special libraries which can respond more quickly and thoroughly and are better able to identify and respond to specific research needs. The scope of service does not include: 1) compilation of bibliographies; 2) responses to request for information connected with school assignments, or contests; and 3) research in heraldry or family history. Due to the unique nature of NDPL collections, however, this service is often the only resource available to the general public to pursue information on such specialized topics, a fact that is taken into consideration in deciding if the question will be answered.

Query Form

The form requests just enough information to guide both the patron in asking and the librarian in answering the query. The question or comment form requests the following information from the user (the only required entry is the e-mail address):

1. Name.
2. E-mail address.
3. Type of question/comment (choices of reference question, general comments, error or problem).
4. Subject of the question or comments.
5. Actual question or comment in a 2 x 5 inches area with a prompt requesting keywords or phrases that describe the topic.
6. Reason for researching topic. This area includes the choices of general interest/lifelong learning, school project, academic research, classroom instruction along with the opportunity to choose a description educational level of question.
7. User can also indicate which American Memory Historical Collections have been searched with choices provided for easy click on choices.
8. Send/Clear forms.

Responsibility to Clients

When the patron can expect an answer is delineated below the form: "We will make every attempt to respond to your question within 5 working days." Nevertheless, there is no indication to the patron of the type of answer he will receive to his query. Adding such a feature would enlighten the user as to what he can expect in the reply.

At this time, there is no automated response system in place for the American Memory Collection. In contrast, LOC does have an auto-response system in place, and the NDLP would like to see a similar system in their collections. Clients are able to submit questions at any time, however the response time is limited to business hours.

Questions from patrons posted through this service are never ignored. If the question can be answered elsewhere or is beyond the scope of the service, the patron will receive a standard rejection message. As an example, a question such as "Who was the commanding general in the Battle of the Bulge?" would receive the following response

> Thank you for visiting the American Memory Historical Collections. The question you have asked is outside of the scope of this reference service and not contained in the American Memory Historical Collections. A librarian in your school or public library can assist you in identifying resources that will help you find the information you requested.

Ideally, an automatic acknowledgement system would be put in place to send to patrons whose questions will be answered while sending the rejection message to others so that they could pursue other sources of information.

When necessary, the librarians will negotiate a reference interview via e-mail, although the librarians report that only 50 percent respond to this attempt at clarification. The answers provided can refer to other web links, virtual reference desks, and known expert sites; however, they will not intentionally refer an online patron to another AskA service.

Staffing and Training

The librarians that answer the questions must provide this service in addition to their other duties. Two librarians respond to e-mail questions, and they estimate that this service takes up about 10 percent of their day since volume is not high at this time. Nevertheless, the progress on research and development of this project is hampered because of time and personnel restraint. Routinely, the e-mail queries are reviewed in the morning, and limited time is spent on individual questions. At this time, there is no special training, and the librarians simply use their reference skills online.

Answering the Questions

After the web form is sent by the user, it goes to a perl script program written by a National Digital Library staff member which sends it into their reference e-mail inbox where one of the two librarians reads it, responds, refers or forwards as appropriate. An internal e-mail system provides easy access to collection experts so that the librarian can get an answer for the patron if the question is beyond their own expertise. With the off-site collaborative collections, the librarian can contact the "expert" at that location and utilize their knowledge, if necessary.

Usually, priority for library services at LOC is given to members of Congress and the U.S. Government; however, since this is not the mode which these patrons would use to get information, there is no priority consideration for questions received by the reference service, other than the order in which they were received.

The desired format is for the question to be re-stated in the response; however, there is no formal or standardized procedure in place regarding the nature of the response for the service at this time.

The librarians at this service do maintain a degree of formality when addressing users. Usually, determination is made as to the gender based on the name submitted and a response is composed beginning with "Dear Mr. or Mrs." accordingly. The librarians do not sign their name to the response nor do they provide any further contact information.

Liability/Responsibility/Appropriate Use

Information on this area is found in several places but does not specifically relate to that of the digital reference service. On several pages there is a red box containing the word "Notice" linking to a statements relating to this area. The library advises users on copyright and restrictions to guide the appropriate use of an item but leaves the responsibility for appropriate use to the user. See http//memory.loc.gov/ammem/copyrit2.html. Additionally, in the pages of the various collections, a disclaimer is provided to the user:

> The Library of Congress presents these documents as part of the record of the past. These primary historical documents reflect the attitudes, perspectives, and beliefs of different times. The Library of Congress does not endorse the views expressed in these collections, which may contain materials offensive to some readers.

Funding

The service is funded as part of the National Digital Library Project sponsored by several corporations in conjunction with the Library of Congress. A list of sponsors is available at http//memory/loc.gov/ammem/sponsors.html. Currently, the Development Office is looking for outside assistance to sponsor the e-mail reference aspect of the project since growth and development is envisioned over the next year.

Statistics

A monthly report using the questions and answers in a computer folder provides the activity report. At this time, no statistics are kept about users. At some point, the service may use the information provided by the user to profile user characteristics.

Software

The software currently used for this e-mail reference service is Eudora Light, however, this will be switched to Microsoft Outlook in the near future since the project just received funds from Microsoft.

Archiving

Plans for developing a searchable question archive are in the works. Such a

database would be tremendously helpful to both staff and patrons as it would serve as an additional resource. Personal information from archived questions would be removed.

Quality Control

At this time, there are no controls in place, and there is no review system for the digital reference service itself. Comments from patrons are recorded and plans to explore devices to measure customer satisfaction aspects of the service are also planned for the future.

An error and comment form comes into the same address also. The American Memory Quality Team was developed to correct errors reported through this method. Error reports are forwarded to these team members, which evaluates and corrects them if necessary. Compliments from users are also received via this form (http//memory.loc.gov/ammem/helpdesk/error.html).

Future Developments

Because this service is still under development, many of the gold standard aspects of a digital reference service that might be expected from a national library are not yet in place. David Lankes and other AskA experts met in Spring 1999 to guide and plan the digital reference service for this collection. At one time, a 24-hour-a-day, 7-day-a-week service was under consideration but will apparently not come to fruition.

As policies are written and guidelines set, the next year will bring a more developed service including an archive. The planners are aware of what is necessary for an effective digital reference service, however, fitting research and development within their daily tasks slows down planning. Ultimately, they are "looking forward to a query driven knowledge database search for instantaneous results followed up by personal attention (Interview with service administrator, June 1999)."

Sources

Interviews with Linda White, Digital Library Specialist, Library of Congress, June 1999.

Ask-A-Geologist (U.S. Geological Survey, Menlo Park, CA): Evaluative Analysis

by Janet Spikes

Ask-A-Geologist (AAG) has been in operation since October 1994. It began as an experimental Internet service offered by the field office of the United States Geological Survey (USGS) in Menlo Park, with the participation of several other USGS branches. In its first month of service, its 35 volunteer scientists answered 127 questions. The service has grown considerably since that time. In the first three months of 1999, it answered on average 876 questions of 1809 questions received each month and was able to call upon the expertise of 147 USGS scientists. Ask-A-Geologist is a relatively simple electronic question and answer service which appears to have evolved to meet needs as they developed, without relying overly much on formalized procedures and policies. It is now hosted by the Western Regional Coastal and Marine Geology Branch of the USGS at Menlo Park. Its success is testimony to the goodwill of the USGS volunteers who staff the operation as a public service.

Information about AAG is available from its web site, which includes a general information page, Ask-A-Geologist Examples page, About Ask-A-Geologist page, and Ask-A-Geologist Disclaimers. Rex Sanders, the project administrator, also provided information in response to a request for general information about guidelines provided to volunteers, the service's goals and principal audience, and evaluation and monitoring procedures. Information is not available, however, on the web site about issues such as administrative policy, archiving, and training so that a complete analysis of the service based upon the *Framework for Analysis of an Electronic Question/ Answering Service*, v. 1.0 , is not possible at this time.

Mission, Objectives, Statement of Purpose

The name of this service is Ask-A-Geologist. The name is straightforward and easy to remember and is the first step towards describing the scope of the service to users. There is, however, one element of confusion which results from this name. There are other electronic question and answer services now in existence that are also called "Ask-A-Geologist." The State Geological Survey of Illinois, the Geological Survey of Canada and services in New Zealand and Ohio show up on a Web search of "Ask-A-Geologist" as offering electronic question and answer services with the same name. It is not readily apparent which service is the oldest, but there is room for confusion among users who may have heard about Ask-A-Geologist.

The URL for Ask-A-Geologist/USGS is http://walrus.wr.usgs.gov/ask-a-geologist.

The mission/purpose is not clearly stated on the Web site. The AAG home page begins with the question "Do you have a question about volcanoes, earthquakes, mountains, rocks, maps, ground water, lakes, or rivers? You can E-mail earth science questions to" AAG. The disclaimer page does offer that the AAG "project provides answers to general earth science questions." The project coordinator listed three unofficial goals (i.e. not official USGS policy): 1) to "answer general earth science questions for K-12 students and the general

public by email in a reasonable time"; 2) to "show the value of the USGS to the general public"; and 3) "to provide another, convenient method for USGS workers to interact with individuals from the general public, while using a broad knowledge of earth sciences." AAG thus provides both a public relations exercise for USGS and a public service primarily to students. Moreover, this field office service fits in well with the general mission of USGS, which describes itself as a science and information agency (see USGS main web site at http://www.nwrc.usgs.gov/world/content/people.html):

> The U.S. Geological Survey is not only a scientific agency. The USGS is also an information agency, striving to make a real difference in people's lives by providing unbiased scientific observations on conditions ranging from the ocean depths to planetary frontiers. People, industry, and governments need this information to alert them to hazards, to help them restore the environment and intelligently use natural resources, to help them make sound policy decisions, and to improve the Nation's economy.

Parameters of Service

AAG answers questions about volcanoes, earthquakes, mountains, rocks, maps, ground water, lakes and rivers. On the basis of the three example questions provided at the site, it appears that answers are concise but complete, ranging from one to four paragraphs. The service does reject questions, apparently because it receives more questions than it is able to answer. According to the general description of the service, it answers about 45 percent of incoming messages. The About Ask-A-Geologist page explains that automated replies expressing regret are sent to those questioners who will not receive an answer because of the overload. The general information page also specifies that AAG will not write reports or answer test questions; will not answer questions about specific locations ("is my home in a landslide area?"); will not answer questions with financial impacts or recommend products or companies. It is not clear if these questions receive simple replies of regret or if the questioner receives an explanation as to why his question is ineligible. No other limits on the user are mentioned.

Identifying the Clients

The service is intended primarily for students, although nothing specific is said at the site other than that "we encourage students to send in questions." The project coordinator clarified that the principal audiences are K-12 students, the general public, and some undergraduate college students. He added that "we usually are not a good source of info for earth science professionals or graduate students." There are no geographic limitations on users.

Query Form

The user provides only a name and return e-mail address in addition to the question. The service does not conduct a reference interview with the questioners. AAG provides only an e-mail form accessible by clicking on "You can E-mail earth science questions to: Ask-A-Geologist@usgs.gov." It does not use a query form. The only guidance is in the form of three simple questions posted on its Ask-A-Geologist Examples page: "Why does California have so many earthquakes, and not New York?"; "Why is there so much oil in Texas, but not in Wisconsin?"; and "What are the deepest canyons in the United States?" These questions most likely are model questions set up by the AAG administrators. The same three questions were used in the introductory paragraph of the press release announcing the inception of AAG in 1994 (http://www.esu3.k12.ne.us./institute/harris/Ask-A-Geologist.html).

Responsibility to the Clients

The AAG site informs users that they should receive a reply in "a few days" and on the About Ask-A-Geologist page specifies that its goal is to reply to all questions within three working days. A nice "Who answers the questions?" section says that the questions are answered by

> USGS employees, retirees, and contractors who have volunteered to participate in the project. Most Ask-A-Geologist scientists work on these questions on their own time, during lunch or after work. Their job titles include geologist, hydrologist, cartographer, and technician. Their experience ranges from recent college graduates to senior scientists with more than 30 years experience.

It explains that questions are not assigned by specialty but rather that all the volunteers have a general background in earth sciences, "and an enthusiasm for answering a broad range of questions." The service does not describe specific sources it uses to answer questions.

There is another section entitled "How does Ask-A-Geologist work?" which describes in simple terms how questions are routed. Each volunteer receives messages daily routed to him by custom software. The volunteers are expected to research and answer the question within three working days and to respond by e-mail.

The service does not address the question of user privacy. Interestingly enough, the above-mentioned press release stated that all questions and answers would become part of the public record and that a FAQ would eventually be posted. This has never been done so the privacy implications of posting questions has never been an issue for the service.

The Ask-A-Geologist Disclaimers page states that the "answers are the best efforts of USGS employees, retirees, and contractors, and are not guaranteed to be correct or complete." It adds that answers are not the official policy of the USGS or the United States Government and have not been reviewed for correctness or consistency with USGS policy.

Ease of Use

AAG is located on the web site of the Western Region Coastal & Marine Geology branch of the USGS (http://walrus.wr.usgs.gov/). There is a direct and easily located link from the home page. However, if one assumes that the average user would begin with the home page of the USGS, the links are slightly more complicated. From the USGS home page, a user clicks on "Education: the Learning Web," then on "Adventures in the Learning Web," and finally on a link to AAG. Users with some experience with web pages would be able to locate it fairly easily, but novices might have more problems.

AAG does include links to other sources. It suggests that you first search USGS web sites and provides a link to do so. It also includes links to Other Sources of information: USGS Internet Resources; USGS Learning Web; Ask an Expert (not maintained by USGS); and Geological Survey of Canada (not maintained by USGS). Links are also provided to the U.S. Department of the Interior, U.S. Geological Survey and the Western Coastal and Marine Geology Team.

AAG's e-mail address is readily apparent to the user. Responses are by e-mail only.

Administration

AAG is funded by the USGS. No information is available at the web site about its funding including external funds from other sources, such as the National

Science Foundation. The service does not seem to be funded in such a way as to allow it to reach its full potential. The About Ask-A-Geologist page explains that software has been updated twice since inception of the service, but AAG is now turning away more than half the questions received.

As a government-provided service, AAG is conscious of the difference between answers provided to school children and official statements of U.S. policy. The disclaimer cited above makes this very clear and also adds that "Questions requiring official answers from the USGS or the US Government should NOT be sent to Ask-A-Geologist." This policy does not seem to affect AAG's quality or objectivity. It seems designed more to ensure that the service functions well without having to document every answer and archive each response as a public document.

This service is free. Since its inception in 1994, it has been managed by Mr. Rex Sanders, the project administrator. The site does not indicate any other administrative staff. The questions are allocated to the volunteers by software. Although the system is automatic, it is not expert since questions are not distributed by subject or specialization but rather distributed on a fairly random basis to the participating scientists.

There are no ethical or privacy statements. As mentioned before, AAG does not post FAQs or a bulletin board so has not had to confront this question. No public archive is maintained with names and e-mail addresses. No information is available on the web site about copyright, fair-use, or selective dissemination of information issues. No information is available at the web site about general emergency procedures or the extent of staff involvement in policy development.

Staffing and Training

USGS employees, contractors and retirees volunteer to answer questions. Each volunteer is expected to have a general background in the earth sciences. Age ranges from recent college graduates to long-time USGS senior scientists. AAG relies very much on the good will of its volunteers rather than on a formalized guidance manual. According to Mr. Sanders, the volunteers are sent an automatic reminder e-mail before receiving questions, which states in part, "YOU are the best judge of how much time and effort you can put into answering any question. You are not expected to write terms papers for students, nor tell oil companies the best places to drill. Use good judgement - you are a representative of the US Geological Survey (Personal communication, June 1999)". He summarizes, "Most of the guidance can be summed up as 'use good judgement' (Personal communication, June 1999)." Most scientists answer six questions once per month. It is clear, however, that participation is not part of normal work requirements. Both the web site and Mr. Sanders' message mention that most participants work on the questions on their own time, during lunch or after work.

Answering Questions

Questions are saved for 24 hours. Each morning, custom software distributes questions received the previous day to the volunteers. The volunteers respond directly to the questioner via e-mail. No information is given at the web site about personalization policies or guidelines about the nature of the response. The three examples on the web site are purely factual in nature. Questions are supposed to be answered within three business days. Sources for answers were not cited in the three examples. According to the guidelines provided to volunteers, they can provide referrals to other sources of relevant information. More information is not provided.

Inventory Control

Questions accumulate for 24 hours and are then distributed to volunteers. More questions are received than AAG can cope with so automated replies are sent to some questioners expressing AAG's regret that it will be unable to answer the question. It is unclear as to whether these automated replies are sent only to excess questions or whether there is also a procedure for rejecting questions as inappropriate or beyond the scope of the service. It would appear that no acknowledgment letters are sent out, but replies should be ready within three working days. As stated previously, guidelines leave it up to the volunteers as to the amount of time they spend on answering questions.

Coping With Demand

There is no information at the web site about how AAG copes with unexpected demand, other than the fact that, as the volume of questions received grows, the percentage answered drops. In the first three months of 1999, AAG responded to 876 questions each month at a rate of 48 percent of questions received. This averages out to six questions monthly for their 147 volunteers. Given that volunteers work on questions during their own free time, it may not be reasonable to expect them to answer additional questions. Most likely, the acceptance rate will go up only if the number of volunteers increases.

Archiving

AAG does not maintain a public archive, and there is no information as to whether it maintains a working archive for administrative purposes. AAG had originally planned on posting a FAQ but never did so.

Quality Control

Mr. Sanders indicated they have no monitoring or evaluation procedures.

Hardware/Software

Custom software is used to route questions every morning to volunteers. In January 1998 new software was acquired to limit the number of questions answered each day and in October 1998 it was rewritten to allow it to save questions for 24 hours before forwarding them to volunteers. According to "A brief history of Ask-A-Geologist" (on the About AAG page) this was done to enable the scientists to answer questions more efficiently. Perhaps prior to the use of this software, questions had been sent out on a random rather than scheduled basis. No information is provided at the site about the hardware being used.

Acknowledgment

Some automated regret letters are sent out, but no information about other acknowledgments is provided at the site. It seems unlikely that acknowledgment letters are used. Questioners must instead wait three business days for the reply.

Question Negotiation

No indication is given at the web site about follow-ups if the question is not clear.

Response Guidelines

Response guidelines are very simple. They provide a listing of the types of questions which AAG will not answer--test questions, information about specific locations, endorsements of products or companies, and questions based on information not yet released to the public. Other than that, volunteers are expected to exercise their own best judgement as to the nature of their reply. Mr. Sanders did not indicate that AAG maintains an archive of canned response language. Based on the three examples, answers tend to be concise and factual. However, volunteers can provide referrals to other sources. The exact form of these referrals is not known. The response takes the form of direct e-mail and is not posted on the site. The site does

not provide information as to whether a client can request follow-up or clarification. No policies or procedures are given at the site for determining priority in processing answers or regarding the attachment of non-textual materials.

Evaluation

No evaluation procedures are in place as of June 1999. AAG does maintain statistics and has posted some numbers on the About Ask-A-Geologist page. Statistics include monthly volume of questions, percentage of questions answered, and the number of volunteers answering questions.

External Recognition

In 1995, AAG won the Department of Interior's Innovation Award. In 1998, the Department awarded the Western Regional Coastal and Marine Geology web site, of which AAG is one component, a Shoemaker Communications Award for "its eye-catching, well-designed banner, team approach to content development, and the site's adept layering of information for multiple audiences (http://www.usgs.gov/98_shoemaker.html)."

Comments

There are a few other points which I would like to address which go beyond the scope of our *Framework for Analysis of an Electronic Question/Answer Service*, v. 1.0. I wanted to see how easy or difficult it was to find AAG. Yahooligans! and AltaVista both provide links to it through their hierarchical listing of topics. A search on Google! produced 6491 hits. As mentioned before, there are other services named "Ask-A-Geologist," but the vast majority of the hits that I looked at were related to the USGS service. Many were for links from university and education sites to AAG. I also found a few interesting items such as Bill Goffe's *Resources for Economists* (http://rfe.wustl.edu/EconFAQ.html), which listed AAG as "neat stuff" and a link from an NSF listing of science sites for children (www.nsf.gov/od/lpa/nstw/kids/links.htm). Wright State University in Dayton provides a lesson plan built around Ask-A-Geologist which meets National Science Education Standards for Grades 5-8 (http://geology/k12/askg/eolog/htm). Thus, AAG seems well connected to potential client bases.

Rex Sander's original press release announcing the service was on a few different sites. It was probably transmitted to many logical groups at the time the service began. For example, the full text is available still at the Educational Service Unit site of Omaha (http://www.esu3.k12.ne.us/institute/harris/Ask-A-Geologist.html). Some sites linking to AAG describe it as homework help or in similar terms. Many of the AskA services may be described this way, perhaps to their chagrin.

USGS maintains other electronic question and answer services, which differ significantly from AAG. For example, TerraWeb for Kids on the Western Regional site (http://TerraWeb.wr.usgs.gov/TRS/kids/email.html) is aimed at a younger audience. They ask, "Want to ask a real life remote-sensing scientist or computer geek a question about remote sensing, images, satellites, how computers are used for remote sensing, or any thing else related to earth sciences? Would you like to share a story, comment, or link with us? Here's the place to do it!" Although the topics for questions are sophisticated, the web site presentation is definitely for younger children. They recommend checking with parents before providing an e-mail address and say that provision of names is not mandatory. TerraWeb uses a very simple query form. TerraWeb also provides a link to AAG.

Another electronic question and answer service is intended for adults. The National Water Information Center (http://water.usgs.gov/wrd005.html) "is designed to serve as a focus for the dissemination of

water-resources information to all levels of government, academia, the private sector, and the general public." The electronic Q/A service is available by e-mail or through an 800 telephone number. E-mail service is provided either to the National Water Information Center or directly to USGS state representatives and sampling stations for answers on local issues.

The variety among USGS electronic question and answer services is interesting. I suspect that there is no overall USGS policy regarding electronic question and answer services, but the three services have different goals and audiences so one should not expect a standard format.

Ask-A-Geologist is not as sophisticated a site as the Internet Public Library or Mad Scientist. However, it has certain virtues. Its popularity is attested to by the fact that it now receives more questions than it can deal with. Whether it can accommodate its popularity remains to be seen. An obvious project which might help reduce the number of unanswered questions would be to post a FAQ page. Whether or not AAG has the resources or the interest to do this is unclear. One especially good aspect of AAG is that it stresses that the electronic question and answer service benefits both the student who asks a question and the scientist who answers it. The About Ask-A-Geologist page includes the statement that "Many scientists enjoy finding answers to questions outside their specialty. Ask-A-Geologist scientists often learn new things and make new contacts that help their regular work in multidisciplinary projects." Mr. Sanders reiterated this aspect of the service: "This last goal was an unintended side effect of AAG. People 'enjoy' working on AAG, many doing research during lunch hours or after work. They like interacting with the general public. Many are in very specialized positions, and enjoy using (or learning) knowledge outside those specialties (Personal communication, June 9, 1999)." It may be that this enthusiasm on the part of the volunteers will be what enables USGS to continue offering this service until such time as it may be able to cope with the demand.

Sources

Personal communication from Rex Sanders, Project Administrator for Ask-A-Geologist, June 1999.

Ask-A-Linguist: Evaluative Analysis

by Margaret F. Kondash[1]

Ask-A-Linguist is an online question/answer (Q/A) service that has been operating since May 1997. It is an offshoot of the LINGUIST List, hosted by Eastern Michigan University and Wayne State University. The LINGUIST List is a free service available for subscribing professionals to discuss linguistics research topics, while Ask-A-Linguist is the free service to which all nonprofessionals are directed. The questions sent to Ask-A-Linguist are answered by one or more members of a panel of volunteers from the LINGUIST List, and all correspondence with Ask-A-Linguist is kept in a public archive.

Following is an evaluative analysis of Ask-A-Linguist using as a guideline the *Framework for Analysis of an Electronic Question/Answer Service*, Version 1.0, June 4, 1999 (See Appendix A). Information derived from exploration of the site is in normal font, while critical observations have been bolded.

1. **1. Mission, Objectives, Statement of Purpose**

1.1 The name of the service is Ask-A-Linguist.

1.2 The URL is http://linguistlist.org/~ask-ling/index.html

1.3 The purpose of the service is stated at the top of the main page:

> Ask-A-Linguist is a service provided by The LINGUIST List, an Internet network for professional linguists. Although the list itself is restricted to messages relating to linguistic research, many LINGUIST List members are interested in language-related questions of all kinds; and a number of these have volunteered to staff this page. Ask-A-Linguist is designed to be a place where anyone interested in language or linguistics can ask a question and get the response of a panel of professional linguists.

2. Parameters of Service

2.1 As stated in 1.3, "Ask-A-Linguist is designed to be a place where anyone interested in language or linguistics can ask a question and get the response of a panel of professional linguists."

2.2 "Because of the volume of queries, Ask-A-Linguist cannot answer every question. The following are among the topics to which Ask-A-Linguist does not respond: Translations, Etymologies, Origins of Phrases, Idioms and Slang Terms, Personal Names, English Style. If you post such a message, it will be deleted." **This is strong negative language directed at the user, possibly discouraging some potential users from posting questions.**

2.3 There do not seem to be any limitations on the number of questions per user.

3. Identifying the Clients

3.1 The specified user group is "anyone interested in language or linguistics." **Logically this includes mainly professionals and students at the college and graduate levels, perhaps some advanced high school students.**

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1 Author's comments are in bold.

Linguistics is not a subject taught at lower educational levels, so the service does not address younger users. This service seems to be used internationally by college-level students studying linguistics or specific language elements, as well as by citizenry interested in general linguistics topics.
3.2 **The level of expertise of the users of this service seems to vary but is generally high; almost all questions viewed were sent by users with some linguistics background.**

4. Query Form
4.1 The form for submitting a question includes spaces for: Name; e-mail address; "what is your question about?" **(which seems to translate into the subject line in the archive)**; and a question box labeled "type your question here."
4.2 The only way to submit a question is by form: no e-mail address is given for a user whose browser cannot support forms to send a question, **although the address can be extrapolated from the archives.**
4.3 No examples or instructions for submitting questions are given beyond the guidelines on what NOT to submit (see 2.2).

5. Responsibility to Clients
5.1 The service indicates that the user's question will be forwarded to the panel of experts; one or more will respond by e-mail. **No guarantee is given that every question will be answered, nor is it indicated if an unacceptable question (see 2.2) that is deleted is acknowledged at all.**
5.2 No information is given on how long it takes to get a response. Responses are given by a panel of experts, whose names and institutional affiliations are prominently listed on the first page of the site. Sources of information to answer questions are never mentioned, but questions seem to be answered from the experts' knowledge base.
5.3 Question-answering process is explained only as far as "your question will be forwarded to the panel of experts and one or more will answer by e-mail."
5.4 The query form clearly states that "In due course, both the question and response(s) will be displayed on the LINGUIST web site."
5.5 There is no statement of liability/responsibility/appropriate use.

6. Ease of Use/Instruction to the User
6.1 From the home page of the LINGUIST List (http://linguistlist.org) , the Ask-A-Linguist service is not that prominent: it is a text link in the middle of a paragraph of links entitled "Interacting with LINGUIST." This paragraph of links is far down the page and the user must scroll to get to it.
6.2 The service is not that easy to find unless the user is looking for it, or unless he reads carefully the guidelines for acceptable posting to the LINGUIST List (http://linguistlist.org/~notice/) and identifies his question as out of the scope of the LINGUIST List. At this point he is directed to the Ask-A-Linguist service.
6.3 Before he reaches the form to send a questions to Ask-A-Linguist, the user is advised to look at the past queries to the service and their answers, in case his question has been answered already. In addition, questions regarding the "origin of a word or phrase, or if it has to do with English style" are pointed toward a resource page of Online Dictionaries and Style Manuals, "which will answer your question much faster than we can." A link to translation resources is also given.
6.4 No destination address of the service is given to the user of the form.
6.5 E-mail is the only delivery option for the response to the question.

7. Administration
7.1 Ask-A-Linguist is funded largely by subscriber donations. There are several places on the site where support is solicited unobtrusively.
7.2 **Sponsorship of the services (LINGUIST List and Ask-A-Linguist) by the two universities provides a sense of**

authority and objectivity to the service, but any actual influence of the sponsorship (or of donations) is not visible.

7.3 Ask-A-Linguist is a free service.

7.4 The staff is loosely organized: the LINGUIST List is comprised of three moderators, **who presumably moderate Ask-A-Linguist as well.** A rather large panel of experts answer the questions posted to Ask-A-Linguist.

7.5 Questions do not seem to be allocated to panel members; **it appears that whoever replies to a given question does so of his own volition.** According to the LINGUIST List moderator, "we tell them that there's no obligation for each one to answer every question, though we hope that each question will receive an answer from someone (Personal communication, June 9, 1999)."

8. Staffing and Training

8.1 Volunteer subscribers from the LINGUIST List comprise the staff that answer questions.

8.2 There is no level of expertise required to subscribe to the LINGUIST List from which the volunteers come. **All the panel members seem to be educators; or otherwise affiliated with universities.** According to the moderator of the LINGUIST List, the panelists are volunteers but most are well known linguists so their qualifications are not really an issue (Personal communication, June 9, 1999)."

8.3 Panel members are volunteers. The LINGUIST List does not appear to be recruiting more volunteers for the Ask-A-Linguist service.

8.4 There are no posted requirements for the volunteers regarding the answering of questions. **Analysis of the archives shows that a relatively small percentage of the panel answers the majority of the questions**.

9. Answering Questions

9.1 **Based on an analysis of the archives, questions seem to be sent to the main e-mail address and then posted on some kind of bulletin board for the panel members to read and answer. A fortuitous find while browsing the archive revealed instructions sent to the panel members (see Figure 1). Individual responses are sent both to the user who posted the question, and to the main e-mail address (ask-ling@linguistlist.org) which seems to then post its inbox (or a file derived from it) as the archive. Panel members do not seem to know who has already responded to a given question, and consequently there is some duplication and contradiction in threads with multiple responses.** Figure 1 indicates a response from the archives. The bolded section addresses response guidelines.

9.2 **There does not seem to be any question negotiation, and no requests for further information were seen in the archives.**

9.3 **I did not see any response that looked prefabricated. Based on browsing the archive, there does not seem to be any template for answering questions; the responses are quite varied in content.**

9.4 The name of the person answering the question is always given (sometimes only a first name). Additional personal information (personal e-mail, phone numbers, etc.) is sometimes given. **There seems to be no effort to establish any personal contact nor is follow-up encouraged in any response.**

Figure 1. Example of a Response in the Archive

>Date: Mon, 23 Jun 1997 10:28:52 -0400
>From: Ask A Linguist ~
>Subject: Are we case-sensitive?
>To: Multiple recipients of list ASK-LING
> <ASK-LING@tamvm 1 .tamu.EDU>
>Reply -to: ask-ling@linguistlist. ORG

>Panel: Please remember to: 1. REPLY to the message which you got from Ask-A-Linguist. Don't initiate a new message.
>2. SEND A COPY (cc) of the answer to the person who posed the
>query.

Query

>From: [*name and e-mail address removed*]

>Isn't it too bad that the word "whom" is dropping out of the
>language? It's easy to use and it does make for clearer speech.
>I for one am glad that Ernest Hemingway had read John Donne.
>Spanish Civil War or no, "For Who The Bell Tolls" might never
>have been a Book of the Month selection.
>
>Don't anthropomorphize computers... they hate that.

Frankly, I am not going to shed many tears when "whom" finally drops out of the language--if it ever does. "Whom" has shown a surprising tendency to linger for generations. In any case, the loss of "whom" is merely the latest in a series of reductions of the English case system that began a millennium or more ago, a process that has resulted in the replacement of morphological case marking by syntactic means, most often the use of prepositional phrases, of conveying the same information. While you and I may miss "whom," we demonstrate little nostalgia for "hwone," the accusative case form of "who," which has been long gone for centuries. Words are added and lost continually; people find ways of saying what they mean.
[*name and affiliation of panel respondent removed*]

Note: Bolded section addresses response guidelines.

9.5 There do not seem to be guidelines for responding to questions. According to the LINGUIST List moderator, "the only instructions we give them is to be polite (not that many of them need this instruction) (Personal Communication, June 9, 1999)." **Responses viewed include synopses of "what is generally known" about a subject, vague recollections of incomplete citations, solid bibliographic citations (sometimes including page numbers), referrals to other electronic services, and a suggestion to search the archive for the topic of the question (but no further**

help/instructions). Some answers are very detailed; others are not. The difficulty level is high for an electronic Q/A service, but the service is not aimed at children. The subject matter is very specialized, and most questions are fairly technical. The one question from a ninth grader wanted information on what sort of careers there are for people who are interested in learning languages, and what colleges have good language programs; it was unanswered!

9.6 **Based on responses in the archive, most are answered relatively quickly (1-3 days) or not at all.**

9.7 Referrals are made by the panel members in the responses, but also the query page refers users to a page on the LINGUIST List site with links to Online Style Manuals and Dictionaries.

9.8 No sources of answers given, sometimes source citations (of varying quality) given.

10. Inventory Control

10.1 **It appears that questions accumulate on a first-in, first-out basis, but they are not necessarily answered that way. My guess is that they are posted on a bulletin board, or sent to individual panel members' personal mailboxes to be answered as individually decided.**

10.2 **There does not seem to be any prioritizing of questions.**

10.3 Response time is variable. **Guidelines about response time are not posted.**

10.4 Questions that are unacceptable (see list in 2.2) are deleted. This is stated before the user gets to the query form.

10.5 **Because of the phrasing concerning unacceptable questions (see 2.2), I doubt all question are acknowledged. I did see the response to a question in the archive that could not reach the sender of the question (the e-mail address was wrong), but the panel member sent the response to the central list anyway, in hopes that the sender would see the answer there. This also implies that there is no automatic acknowledgment of questions, and no testing of the e-mail address submitted**

10.6 According to the moderator, the volunteers are given no guidelines whatsoever for responding. **The answers are generally short and probably not time-consuming. Whether this indicates following a guideline is unknown from observation.**

11. Coping with Unexpected Demand

11.1 **The only way this service discusses dealing with demand is to limit the types of questions it answers "because of the volume of queries."**

12. Archiving

12.1 The archive is public: the entire text of every e-mail (since May 1997), including personal information, is kept in the archive. The purpose is to make available to the public all the questions previously answered by the service.

12.2 Users are not allowed to specify if they do not want their questions archived.

12.3 The archive is easily accessible from the Ask-A-Linguist main page. From the LINGUIST List main page, the user must go in through the Ask-A-Linguist link **(the only link to an archive on the LINGUIST List main page is to the LINGUIST List archive, which is a bit confusing.)**

12.4 The archive is indexed by quarter only. The user must select a quarter to browse (Jan-Mar 1999, Apr-Jun 1999, etc.) Each e-mail is "indexed" by subject, thread, and date. The date index is a listing of each e-mail, (subject line, date and time sent, person from) but not in chronological order. Replies to each e-mail are indented. **Clicking on subject index (a link which does not appear on every page, only on the individual e-mail message pages) seems to link the user back to the date index.** The thread index is the most coherent. E-mail conversational "threads" are listed in order (although the dates of each E-mail cannot be seen without going

into each individual message), with the author's name next to the subject line. **Here it is easy to see which of the panel respondents answer frequently, as well as which questions are unanswered (the messages that stand alone and have no follow-up messages or "possible follow-up messages" listed after them).**

12.5 Archive is searchable by quarter or the entire archive. Searching capabilities are quite complex, allowing for the equivalent of Boolean AND and OR searches, phrase searching, truncation. The searcher can specify that search terms be in the same line and can allow for misspellings within a word or a "best match" function. **All of these capabilities are wonderful to overcome the difficulties of natural language searching, but they are almost overkill. I think more efficient would have been an actual subject index to browse, possibly introducing a controlled vocabulary into the system, or at least organizing the existing subjects into categories.**

12.6 The archive does not seem to be selective. **The notice on the query form implies that everything is archived, and it does seem to be so-- even the unanswered questions.**

12.7 There is no FAQ file.

12.8 According to the moderator, the archive is managed automatically by Mhonarc software (Personal communication, June 9, 1999). It is a static archive: there is no maintenance performed on it. **An exploration of the structure of the archive reveals the inconsistencies of software that was not designed specifically to manage the archive of an electronic question and answering service. For example, when viewing a message, navigational possibilities include previous. subject and next subject, which would imply the next e-mail (chronologically?). Often these links are the same as a previous thread, next thread. Perhaps this is because, chronologically, the responses were posted before any other queries, but this is very unclear, and very confusing. The date index is no help in this matter; nowhere is there a strict chronological listing of postings. Also, often the previous. thread, next thread (which is useful for following all the postings on a topic) will link to simply the next e-mail (again, chronologically??), which is totally unrelated. I cannot believe that a human indexer would think this useful. In addition, the equivocating "possible follow-up messages" seems to be human doubt of an automated system's logic capabilities (e.g., following the line of replies to an E-mail) where in actuality every "possible follow-up message" I looked at was indeed relevant.**

13.1 Quality Control

13.1 **There does not seem to be any control over the quality of answers; and accordingly, the quality of the answers varies greatly. In many cases; the panel member did not actually answer the question being asked!** According to the LINGUIST List moderator, Ask-a-Linguist uses a custom program written by a student which allows the messages to be read first by one of the LINGUIST list editors, then sent on if appropriate (Personal communication, June 9, 1999).

14. Hardware/Software

14.1 As described in 12.8, the archiving process is automated using Mhonarc mail-to-web software.

15. Acknowledgment

15.1 **It appears that no automatic acknowledgment is sent after a question is received, and there is probably no acknowledgment of the deletion of unacceptable questions (see 10.5).**

16. Question Negotiation

Question negotiation does not seem to occur at all in this service.

17. Response Guidelines

Aside from the example in Figure 1, no guidelines seem to be available to panel members.

18. Evaluation

It does not appear that any evaluation of answers, of the contributions of panel members, or of the service as a whole is occurring

The three moderators for the LINGUIST List, who seem also to have Ask-A-Linguist under their jurisdiction, obviously have a huge responsibility. The above findings, while revealing seemingly careless practices for a Q/A service, make sense in light of the short staffing and reliance on donations: reliance on volunteers to answer questions; no requirements of volunteers; no quality control of answers; no assurance that all questions will be answered; no value-added indexing; possible automation of archive. This critical analysis is not meant solely to reveal the flaws of this Q/A service but also to show one area where AskA services are not well-developed and maintained. Ask-A-Linguist is the only (or one of very few) free service available that addresses questions of this nature for a mainly adult audience and is thus not really comparable to the K-12 science Q/A services. There is not much AskA service coverage in this area, and it may be that there is not much demand for linguistics Q/A services because linguistics is not taught at lower levels of education.

Follow-up questions concerning quality control, response guidelines, and archiving were sent to the moderators of the LINGUIST List, as well as to the central e-mail address for the service. The moderator's replies are incorporated at pertinent sections.

Sources

Personal communication from Helen Dry, Moderator, LINGUIST List (June 9, 1999).

Ask A NASA Scientist!: Evaluative Analysis

by Teresa L. Aquino

This paper is a case study of the Ask A NASA Scientist! (http:/imagine.gsfc.nasa.gov/docs/ask_astro/ask_an_astronomer.html) question and answer service according to the subdivisions of the *Framework for Analysis of an Electronic Question/Answer Service* Version 1.0 (June 4, 1999). It also contains a conclusion in which some general observations of the service are articulated.

Mission, Objectives, Statement of Purpose

The name of this service is Ask a NASA Scientist!, and it is located at http://imagine.gsf.nasa.gov/docs/ask_astro/ask_an_astronomer.html. The parent organization is NASA, and this page is part of the Imagine the Universe! web site, a service of NASA's High-Energy Astrophysics Science Archive Research Center (HEASARC) within the Laboratory for High Energy Astrophysics (LHEA) at NASA's Goddard Space Flight Center.

The name Ask a NASA Scientist! is a true statement, but it is a little misleading. It could be misconstrued as referring to a very large pool of any of NASA's scientists, but this is not the case. The true purpose of the service, which is not readily apparent from either the Imagine the Universe! site or the Ask a NASA Scientist! homepage, is to answer questions from people ages 15 and up related specifically to X-ray, gamma-ray, and cosmic-ray astrophysics. A link from the Ask a NASA Scientist! homepage called "Who are we and what kind of questions do we specialize in?" gives this purpose as well as other useful information. The HEASARC has its own web site, at http://heasarc.gsfc.nasa.gov/docs/outreach.html. This site has a link to Ask a NASA Scientist!

Parameters of Service

This service answers only unique questions. It will reject questions for any number of reasons, including: non-questions, invalid return e-mail addresses, homework questions, questions outside of the scientist's scope, obvious laziness on the part of the user, or if the scientists lack time to answer the question. The one stated limitation on using the service is that users submit only one question per week.

The service also has a link to "Guidelines for Teachers" in which teachers are asked not to overwhelm the service by making writing to it a class assignment. Instead, they suggest that teachers use the information that is already available on the Imagine the Universe! web site.

Identifying the Clients

According to the service homepage, the intended users are people ages 15 and up who have serious interests and questions about astrophysics. Children ages 4-14 are directed to StarChild, a different NASA service. But in contradiction to that statement, the HEASARC homepage says that users of any age may ask questions. Considering that the answers given to questions usually require a very high level of science and reading comprehension, the statement on the HEASARC page should probably be revised.

Query Form

The information required to ask a question can be found on the same page as the web-form. The user must provide only a name, an e-mail address, and a question. In the directions at the top of the form the service requests that the user indicate within the question a grade level (if in school) or familiarity with astronomy. The form is the only means of sending a question on this page, and there is no guidance or examples given on how to state a question. An e-mail address exists for the Q/A service in Search the

Archives; but again the address is not evident on the web-form page.

Responsibility to the Clients

The service indicates that it will provide an e-mail response to the user within one to three weeks. But it also emphasizes that the scientists are really busy, that everyone is a volunteer, that they receive hundreds of questions per week, and that they cannot answer every question. It also takes every opportunity to suggest that users look first in the achives to see if their question has already been answered. In all of these ways, it absolves itself of the responsibility for answering questions in a timely manner or at all.

It does not indicate in what form the response will be provided or what sources will be used. It appears, however, that the questions are answered by the volunteer scientists who are themselves experts in this field. There is a link to information on the staff on the *Imagine* homepage. The site does not explain the Q/A process, user privacy, or liability. There are no indications either of what the answer will look like. The only way to find that out is to look at previously answered questions in the Archive.

Ease of Use/Instructions to User

It takes four clicks to get to the web form. The Ask a NASA Scientist! link is in the form of the third navigational button from the left on the bottom of the Imagine home page. In fact, it is in the same place on every page within the Imagine site which makes for very easy navigation throughout the site. The service is not, however, mentioned elsewhere on the homepage.

Once there, the Ask a NASA Scientist! homepage frequently directs users to other sources of information including: StarChild (a NASA service for young readers), the web, the Ask a NASA Scientist! Archive, and its own Hot Topics, Special Features, and Primary Areas of Interest and Expertise. At the very bottom of this list is the link to "Submit Your Question."

Once a user clicks on "Submit Your Question" they are brought to another page called "Guidelines for Asking Your Question" which provides a list of do's and don'ts. Users can then click on the "Ask a NASA Scientist" button at the bottom of the page, which will then bring them to "The Ask A NASA Scientist Post Office."

The destination address is not apparent to the user of the query form. However, if you do a search in the achives, the results generated will bring up a link to *Ask a NASA Scientist!* that includes an e-mail address (astro@heasarc.gsfc.nasa.gov). The only form of response a user will receive will be by e-mail--there are no other options, and the service specifically states no responses are provided by regular mail.

Administration

This service provides no written statements on how the service is administered.

In terms of resources, there is no statement on how the service is funded, but, as it is part of the larger Imagine site, it would appear that NASA is the sponsor (at least for server space). The service is free and open to all. There is no indication of how staff is organized other than that there are eighteen web site text authors who make up The Imagine! Team, including a project leader, and a technical rep. There are also no procedures for allocating questions, no ethical statements, no privacy statements (although questions in the achives are stripped of any identifying material), and no indication of copyright, liability disclaimers, or emergency procedures. There is also no indication of any kind of policies at all that are available to the public.

Staffing and Training

A small number of staff members (either astronomers or programmers) from HEASARC volunteer to answer questions. There is no indication about how the volunteers are recruited, trained, or assigned responsibilities.

Answering Questions

The site does not give any information as to how questions are processed. Questions are sent using the online form (or perhaps e-mail, if the user sees the address) and then answers are returned via e-mail. It does not appear that any question negotiation occurs; questions are either accepted and answered or rejected. Answers are not very personalized--there is no greeting usually, and the common sign-off says "I hope this helps" with the name of the answerer following. No instructions for follow up are given to the user.

If there are guidelines for how answerers should answer a question, they are not published on this site. Turn-around time is stated as 1-3 weeks. There are no written procedures for referrals or citing sources either, although several answerers do include links to other web pages as part of their answers.

Inventory Control

There are no written guidelines posted on how questions are queued, assigned, prioritized, or selected by answerers. Again response time is stated to the users as 1-3 weeks, or perhaps never. When a question is sent to the service, a confirmation screen appears to let the user know their question has been sent, but again it includes caveats on how long it will take to be answered if it is answered at all. Finally, there does not appear to be a numbering or dating system either; how questions are tracked is unknown.

Coping with Unexpected Demand

There are no written guidelines on how the service deals with unexpected demand. From what can be seen, it is already overwhelmed with questions and is expending a lot of energy to encourage users to check the archives and other sources of information before submitting questions. It also clearly states that it cannot answer all the questions submitted.

Archiving

The Archive is the one positive part of the whole service. Questions are stripped of all identifying information and then are usually answered in a very detailed and thoughtful manner. They are sorted by subject into astronomy-related categories, including a Hot Topics section which is similar to an FAQ. The achives are freely available to anyone and are keyword searchable. Unfortunately the items are not dated, so it is impossible to tell the age of a question/answer. It appears that the Archive is selective in what it posts, although without documentation this is impossible to confirm. It appears that the preference is to post answers to complex or unique questions, i.e., those which cannot be answered by anyone else or cannot be located anywhere else on NASA's web sites. Who manages the Archive is not clearly stated, although one can assume it is the Imagine team.

Quality Control

How quality control is maintained is unknown, as no written procedures are included on the site.

Hardware/Software

The hardware and software are not indicated either, although from observation the site is web based (there is not a text only option), and it has a search engine for searching the archives.

Acknowledgment

As mentioned before, a response screen is automatically generated immediately after a question is submitted via the form. It contains the generic "don't expect much right away" statement, and then it shows a copy of the question, which was submitted.

Question Negotiation

There are no instructions on how to proceed with question clarification.

Response Guidelines

It appears that responses are generated one at a time, by an individual or groups of people working together, depending on the area of expertise required. Some responses are short, others are lengthy, and all are written at a very high-level, even when the user indicates a lower grade level. Responses are e-mailed directly to the user and at some point some are posted to the Archive. It is not clear if all questions answered are posted to the Archive.

Due to the lack of written policy documentation on the site, it is impossible to know what if any guidelines are used when responding to questions.

Evaluation

It is unknown at this time if the service conducts any kind of formal or informal evaluation of itself. There is no indication of it on the web site.

External Recognition

A search on the site, and on Yahoo, Lycos, the EBSCO database, and the ScienceNews web site was unsuccessful in locating any information regarding awards that the site has received or articles that have been written about it.

Conclusion

This site is still a work in progress. It is staffed by volunteers who love the work they do, and who want to share their enthusiasm and knowledge of this particular area of astronomy with anyone else who is interested.

While the actual high-level content provided in the answers to questions is very good, and the organization of the topics in the archives is excellent, the service provides less than satisfactory information about its administrative policies and procedures. There is no documentation on the site as to how the service is managed, how questions are to be answered, or how volunteers are trained.

From all the evidence, it appears that this service was pulled together in a rather ad hoc manner. Because of poor initial planning it has since run into the problem of how to continue to provide service in the face of overwhelming numbers of questions. In response to this level of demand, the service has chosen to be very selective in the kinds of questions it answers and to help users locate the information they seek using other sources of published information on the web.

Being selective has its drawbacks in terms of customer service. Users never know if or when they will receive a reply to their questions. This can have an effect on user return rate. In this case, long turnaround time is clearly being used as a deterrent to questions.

Overall it is a site that contains very good information; however, the Q/A service itself could stand some improvements, particularly in how its administration and policies are articulated to users and in how quickly answers are provided.

Ask Dr. Math: Evaluative Analysis

by Laura W. Speer

1. Mission, Objectives, Statement of Purpose

1.1 What is the name of the service?

Ask Dr. Math

1.2 What is the URL?

http://forum.swarthmore.edu/dr.math/ask.html

1.3 What is the mission/purpose of this service?

The mission is to answer questions about mathematics from K-12 students and their teachers..

1.4 Is the mission/purpose apparent to the user?

Yes, the mission is easy to discern.

2. Parameters of Service

2.1 What types of questions does this service answer?

Ask Dr. Math answers all types of questions--short and long answer.

2.2 Does the service reject questions?

If so, what is the basis of rejection?

They do not answer all questions because of the volume they receive. They also test e-mail addresses and do not answer those that bounce back (duds).

2.3 What limits exist on the service for an individual user?

The only limit apparent on the service is a set of instructions to teachers about appropriate classroom use of the service.

3. Identifying the Clients

3.1 Who are the intended users?

The service states that it answers questions from K-12 students and their teachers - no distinction is made other than that. There is an area for questions at a higher level and some of these were from college students. It also states that generally English is the only language that can be used to pose questions.

4. Query Form

4.1 What information is required to answer a question?

Name; age; e-mail address (full address, no mistakes); subject (be specific); question

4.2 What options are available?

A form is given as first option; an e-mail address is also given.

4.3 What guidance is given on how to ask a question?

"Tell us how you've tried to answer it yourself; if stuck let us know where so we can help without doing parts you've already figured out."

5. Responsibility to the Clients

5.1 What does the service indicate it will provide to the client?

Assistance in performing a math function.

5.2 Does it inform the client about:

- how soon the question will be returned?

The goal for questions answered is 1-2 days.

- who answers the questions?

A page explains who answers the questions, and another page lists all of the "Drs." names with pictures and web sites (if they choose to provide them).

- The types /specific sources used?

There is a list of suggested sources, both printed and electronic.

5.3 Does it explain the question answering process?

Yes, in the Forum Doctor's Office.

5.4 Does the service address user privacy?

Sort of.

How?

The math forum has a web page that addresses children and the Internet, and in

the description of the service (in the Doctor's office area). There is no privacy statement on the query form. According to the service administrator, the service does not have an official privacy statement; however, they do not distribute any of the names or e-mail addresses of questioners to outside sources. In house the only use of this information is to contact the user for purposes of gathering information about the service (evaluation). At present the names and e-mail addresses do appear in the archives, but they are in the process of removing them.

5.5 Is there a statement of liability/ responsibility/appropriate use?

Yes.

5.6 What is included in it?

It gives examples of appropriate use on the Write to Dr. Math page--homework, puzzles, math contest problems or any math topic.

6. Ease of Use

6.1 How is the service positioned on the web page?

The link is on the top of the forum features list.

6.2 Is it easy or hard to find?

It is one link from the Math Forum home page.

6.3 Does it direct you to other sources?

Yes, FAQs and links (directly); there are also links to other areas in the math forum, links to other sites, and print source bibliographies.

6.4 Is the destination address apparent to the user of a form query?

No, but there is a place on the web site that provides it.

6.5 What options are available?

The answer is e-mailed to the questioner and also placed in the public archive.

7. Administration

7.1 How is the service funded?

The service is funded through a combination of a grant funded by the National Science Foundation and support from Swarthmore College, Hewlett Packard, and Microsoft. It is a service that is part of the Math Forum, which has partnerships with many other organizations, such as the Eisenhower National Clearinghouse for Mathematics and Science Education and the National Council of Teachers of Mathematics (NCTM).

7.2 How does funding/sponsorship influence quality and/or objectivity?

It does not.

7.3 Is service fee-based?

Not at this time, but may be for some users in the future.

7.4 How is staff organized?

The staff is a combination of paid employees and volunteers.

7.5 Who allocates questions to answerers?

It is done manually. At present answerers (doctors) can self-select or administrators (nurses) can assign.

7.6 Are there ethical statements?

Are they easily publicly accessible?

No.

7.7 Are there privacy statements?

Are they easily accessible?

There is a page that addresses children on the web and filtering, but not privacy directly. (See Section 5.4).

7.8 How are copyright, fair-use, selective dissemination of information issues managed?

7.9 Are there liability disclaimers and/or content disclaimers?

No, accuracy is monitored both in the question-answering and archiving of questions.

7.10 Are there emergency procedures?

There is a section on software and software support, but in the online documentation overload or other emergency procedures are not addressed. Ask Dr. Math does discourage teachers from inundating the service with a set of class questions, because it will "stress" the system.

7.11 To what level are staff involved in policy development?

From the documentation that is available online it is apparent that staff input is solicited continually through planning meetings, staff newsletters (this is new), and the "community center" electronic support area.

8. Staffing and Training

8.1 Who will answer questions?

Volunteer and staff "doctors" answer questions.

8.2 What level of expertise is required?

It varies according to the difficulty of the question.

8.3 How are answerers recruited and selected?

There is a form on the Internet that a person wishing to volunteer fills out and lists their areas of expertise. There have also been a few test cases of "doctors" recruiting teams from their workplaces. According to the service administrator, anyone who has communicated with the service about the possibility of becoming a volunteer is sent a response that includes the URL for an area of the service that explains the answering procedures in more depth. The different areas of the service are explained, and interested persons are able to view the actual questions that are going through the process. If they are still interested in volunteering after this preview, they are asked to fill out an web form that includes name, e-mail address, college/year/major (if applicable, and a block to include information about themselves, strengths they feel they have, and any questions they may have.

8.4 What is expected/average time commitment for answerers?

Whatever time a person can volunteer is acceptable. There are no apparent statistics on average time apparent on the web site.

8.5 What training exists for the answerer?

"When new Doctors receive their accounts, they undergo a screening process. During this screening, responses that they write to students do not go directly to the students, but rather they sit in the Holding Tank (currently the Holding Tank is located at the top of the Triage Page) awaiting approval by the administrative staff. When the administrators review a new doctor's work, they are given the chance to edit the doctor's response (although generally administrators ask the new Doctor to rework the answer him/herself to facilitate the Doctor's training), to send comments via e-mail to the new Doctor, and to write an entry in the new Doctor's evaluation file. This evaluation file is crucial to the administrators when they make decisions about whether to promote a Doctor from "new" status to "tenured" status. The Doctor's Office keeps track of who answers which questions, and, in the case that the question went through the Holding Tank, the member of the administrative staff who approved the question is also noted (from The Doctor's Office System Functions)."

According to the service administrator, new volunteers are provided with many types of guidance. They are given the URL of pages that guide them in answering questions, are monitored by more experienced doctors as was already described, are encouraged to explore the archives and FAQs as resources. They also have access to a MEMO area where they may post questions they have to other Doctors asking for help and receive a monthly electronic newsletter. Tips on writing good responses are included in the monthly newsletter, such as "In order to give proper and thorough information to the students, our answers are sometimes long and/or technical. Please be sure that when you write long or technical answers, you emphasize clarity in your writing style. In addition, be sure to encourage the student to write back for more help, or point out that the material is difficult. This way, if the student does not understand, we hope he or she will not become discouraged (Newsletter, May 1999)."

8.6 Are there seniority benefits and/or increased responsibilities?

Yes, when a volunteer is deemed

tenured, he can then send out answers with having them checked and if he is chosen to become an administrator, he can do even more, e.g., change doctor records, move things to the archive. The third high-level clearance functions within the archiving of questions.

8.7 If answerers are staff, how does the Q/A service responsibilities fit into their other responsibilities?

Some of the administration/editing/ archiving is handled by them according to their positions; answering by staff is not addressed.

9. Answering Questions

9.1 Describe the process a question goes through.

A question is received; given an id#; subject area is identified (either by expert or human system); an e-mail is sent to acknowledge receipt of the question by the service; the question is put into the queue where answerers can choose question or nurses can assign questions; doctors answer a question, e-mail the result to the patient, and mark the question complete and ready to be archived.

9.2 Are there question negotiation guidelines? A incoming message that is not a new question but rather a continuation of an exchange between doctor and patient can be added to an existing thread, allowing the exchange to be recorded as a single visit.

Is communication through other media an option?

Yes, an address and phone number are available on the Math Forum site.

9.3 What templates/canned answers exists?

The question form and comment form are web forms; the response sent to acknowledge receipt of the letter is canned. There may be others not known at this time. According to the service administrator, volunteers are guided in preparing thorough and comprehensible responses. There are some standard responses, but in the area of question-answering the questions are unique and the answers are personalized. Templates are not used, but some of the information is provided automatically by the software, i.e. name of questioner, e-mail address, and question.

9.4 How much personalization is given?

The answers all seem to be personalized.

9.5 Are personal contacts to answerers given in responses?

Not generally, but there may be a few. Their names and sometimes more information is available to the public.

9.6 What guidelines exist about the nature of the response?

This is not available online.

9.7 What guidelines exist for response time, if any?

1-2 days; difficult questions may be longer.

9.8 What is the policy and procedure for referring questions?

All doctors may send memos asking for help.

To whom are referrals made?

"Tenured" (more experienced) doctors.

9.9 Are sources of answers given?

If cited, yes; if just an explanation is given, no.

10. Inventory Control

10.1 How do questions accumulate?

Questions accumulate in what is called the triage section. It is a queue. Are questions assigned?

Some are assigned by the "nursing staff" (administration), and some are chosen by doctors (answerers).

10.2 How are they prioritized?

Last in, first in line.

10.3 What guidelines are given for response?

1-2 days.

10.4 What is done with questions or clients not matching guidelines?

It is acceptable to take longer for any questions that requires a more lengthy answer, or it may take longer for someone

to choose it.

10.5 Are all communications acknowledged?

Yes, automatically by the e-mail server.

10.6 What are the guidelines on time limit?

Not available online.

11. Coping with Unexpected Demand

11.1 Are there scheduled down-times?

Not announced online.

11.2 How are down-times communicated to users?

No one is guaranteed an answer and that is explained on the question web form page.

11.3 What is done if system is inundated?

Many of the questions will not be answered. Also, it may cause the system to malfunction (explained on the not acceptable use page for teachers).

11.4 Is there a limit to the number of questions the system can handle?

Yes, I think so, but it is not revealed.

12. Archiving

12.1 What is the nature of the archive?

It is a public archive. Material that is of general interest or is unique is included. The archive is fluid; it is continually being updated. The e-mail address/name of the questioner and the doctor's name are included in the archive (no anonymity).

12.2 Are users allowed to specify if they do not want their question archived? No.

12.3 How easily accessible is it?

Very easy.

12.4 Is it selective?

Yes.

Is it indexed or searchable?

Yes, it is searchable and organized both by grade level and math discipline.

12.5 Is the archive selective?

Yes, only unique or general interest questions are included.

12.6 Is there a FAQ?

Yes, and it is organized and searchable (by grade level and discipline).

12.7 How is the FAQ related to archive?

The FAQs are articles that explain certain math problems, terms, and formulas that many students find useful.

12.8 Who manages the archive?

The archive is managed by the Ask Dr. Math Doctor's Office Staff.

13. Quality Control

13.1 How is quality control maintained?

There are resources available on the math forum web site; doctors may confer with other doctors (electronically); and, in some instances in the future, someone may add further information to an answer to further clarify it.

13.2 What happens if quality is inadequate?

Please refer to the training of staff in Section 8. They are asked to rewrite the response (with guidance).

13.4 Is there a review process for new answerers?

Yes.

[13.5] How does the system respond to negative feedback?

According to the service administrator, any communication from patrons, whether positive or negative, is responded to. They get very little negative feedback.

14. Hardware/Software

14.1 Describe the hardware/software used by this system.

The Forum Software Department web page (http://forum.swarthmore.edu/tools/) describes the software used to design and run the site. There is a schematic drawing of the building that lists Ethernet and telephone jacks, powerbooks, and NT machines. Math Forum thanks Hewlett Packard for their support, so one can assume that they have at least some Hewlett Packard Hardware. The Doctor's Office software is a set of programs designed to specifically run this service and is accessible to anyone having Netscape 2.0 or higher online.

15. Acknowledgment

15.1 What kind of acknowledgment is sent?

A "canned" response.

15.2 How soon is it sent? Within minutes.

15.3 What information does it contain?

It thanks the user for sending in his question (does not restate it) and gives suggested places to look for information while waiting for the question to be answered

15.4 Is it sent automatically?

Yes.

16. Question Negotiation

16.1 If question requires clarification, what are the guidelines?

Question negotiation is not really addressed (or done). If a person responds with another question about the first query, it is added to the first query in the archive.

17. Response Guidelines

17.1 How is the response generated?

This is not addressed. It appears to be mostly free form, but a request for information has been sent.

17.3 Limitations or constraints on the answers?

None that are apparent in the documentation.

17.4 What documentation accompanies the answer?

If a source is cited, it will be listed; many of the answers are just explanations with no sources given.

17.5 How does the service respond to ineligible/inappropriate questions?

The answer to this is not apparent. There is, however, instruction about what is appropriate use of the site.

17.6 How does the service address level of knowledge/ language skills of the user?

The answers are categorized by grade level, and answers in that area should be at that level.

17.7 What policy restrictions are there on sources?

Not addressed.

17.8 Are previous answer available and searchable?

Not addressed.

17.9 What format does the response take?

An e-mail is sent to the questioner, and questions of general interest are posted on the archive.

17.10 How does the questioner request clarification of the answer?

By replying to the answerer.

17.11 How does the client request follow-up?

Same as 17.10.

17.12 Is there a policy on response time?

1-2 days generally.

17.13 Is there protocol for determining priority of messages?

A staff member (nurse) monitors this queue and assigns questions that are not being selected.

17.14 What are policies regarding attaching to non-textual materials?

Although not addressed in the documentation, attachments of web sites are used frequently.

18. Evaluation

18.1 Is there a formal evaluation in place?

Yes.

18.2 What is the nature of the procedure?

There is a comment form; you may reply to the answer sent you; and in Spring 1999 a formal survey was done online.

18.3 How frequently does it occur?

Not addressed.

18.4 What measures of performance are used?

Although the only items shared online are the thank you notes, other statistics are gathered but are not available to the public.

18.5 Is there a follow up to the user?

Not addressed.

18.6 How does the service evaluate the quality of answers provided?

See 8.5.

18.7 Does the service meet mission goals?

Yes.

18.8 What statistics are maintained by the service regularly?

Statistics mentioned by the service administrator: number of incoming questions; number of answered questions; percent answered. These may not be all.

How are they used?

Statistics are use in the writing of grant proposals, management guidance, and reports to the grant organizations that support the service. According to the service administrator, statistics are kept for use in evaluation of the service. Some of the statistics (number of incoming questions/number of answered questions/percent answered) are shared with the volunteers in the monthly newsletter.

19. External Recognition

19.1 What awards has this site received?

1999 Webby nominee; 1998 Virtual Reference Desk (VRD) Top Six Award; many others are listed on the web site (http://forum.swarthmore.edu/forum.awards.html).

19.2 What articles are written about it?

At least 30 newspaper and magazine articles recommended it as very useful for parents and teachers who need guidance. No scholarly articles were located.

Comments

The questions/concerns that were directed to the service for clarification, are:

1. Are canned responses used?
2. How is privacy addressed? The names of children (and contact information) is available publicly online.
3. Although the option of e-mailing in a question if you cannot use the web form is offered, the e-mail address was not available on the Ask A Question page.
4. What is the experience level that they are seeking in volunteers?
5. Does the service receive any negative feedback and what do they do with it?
6. What type of statistics do they gather?
7. Are templates used by Doctors when answering questions?

The service administrator's responses have been incorporated into the text.

The Ask Dr. Math question and answer service is an excellent choice to use as a model for designing a new service. The planning and management of the service is apparent in the in-depth documentation that is available to the casual patron or the interested information professional. Ask Dr. Math's attention to detail and dedication to math education is to be commended. I was surprised and impressed by the number of professions and organizations that were involved in the planning, launching, and continued support of Ask Dr. Math. Any organization that is considering planning a questions and answer service should keep in mind that it will be more successful if more people (professional, community, and organizations) are allowed/invited to participate in the original/future planning and subsequent evaluation.

Sources

Personal communication with the Ask Dr. Math service administrator, June 1999.

Ask Dr. Universe: Evaluative Analysis

by Kristen Gramer

Mission, Objectives, Statement of Purpose

Ask Dr. Universe (http://www.wsu.edu/DrUniverse) is an apt name for this question and answer (Q/A) service. The site, which is operated by the Graduate School and News and Information Services, Washington State University (WSU), provides answers to questions on any topic a user is curious about. The mission of the site is to use Dr. Universe s resources to answer the questions that people have and are either afraid to ask or do not have the proper resources to find the answers to on their own. Dr. Universe answers questions on all topics from science to literature to philosophy and beyond. The question "Why Dr. Universe?" is answered within the web site. From the main contents page, the user can select "Who is Dr. Universe?" then easily go to "Why Dr. Universe?" from there.

Parameters of Service

There are no guidelines on the types of questions that the service answers. The questions can be on any topic. There is no mention of appropriate question length. The query form has a Question box that measures 4 x 1 inches. Most of the questions in their archive range from one sentence to a short paragraph. The service has a question volume of approximately 600 questions per week. Time constraints only permit the staff to answer 15-20 percent of the questions submitted. The service hopes to alleviate this problem in the future by increasing the number of staff. There do not appear to be limits on the use of the service for individual users. Within the questions included in their archive, several of the users identify themselves as repeat users, and there are many queries that contain more than one question, and, at times, several unrelated questions at once.

Identifying the Clients

The web site itself does not specify a specific user group other than people who have questions they would like to have answered. The service is extremely kid-friendly. Dr. Universe is depicted as a large cartoon cat and other graphics on the various pages include cartoon images of spiders, ladybugs, bees, etc. The general tone of the text is also kid-friendly. A child may not understand every word he sees, but he will not be discouraged from using the site by the few words he encounters that he may not know.

Query Form

The user is required to provide very little information when they submit a question. The user must write his question and e-mail address in the spaces provided. The form solicits other optional information:

1. First name, last name.
2. Age.
3. City; state.
4. Gender (from pick list).
5. Academic status: student or teacher.
6. Grade level: not a student, grade school, middle, high school, college, faculty - elementary or secondary, faculty – Collegiate.
7. Source of information about Dr. Universe (from pick list: friend, teacher, family member, WSU web site, another web site, newspaper, other).
8. If web site, the URL.
9. If newspaper, its name.

10. Anything else you want Dr. Universe to know about you.

The optional information is used by the Dr. Universe staff to identify characteristics of the users and to determine the appropriate level of response to the user's question.

The user can submit a question using the query form. The user also has the option of e-mailing Dr. Universe directly and a regular mail address is also provided. The site does not indicate how it will respond to questions submitted by regular mail. Questions submitted electronically will be answered by e-mail and posted to the archive. When the user selects the query form, there are no specific guidelines about the type of question or the form the question should take. The only instructions are for the user to ask about something he has always wondered about. There are several places in the web site where the user can access previously asked questions to develop a sense of the types of questions that have been asked or to see if his own question has already been answered. There is a Featured Question which includes a longer than usual response to a user's question from a WSU faculty member. There is also Today's Question, which changes daily, and a searchable archive of previously asked questions.

Responsibility to the Clients

Dr. Universe pledges to get the answers to users questions. The questions will be answered by researchers at WSU, if necessary. One service that will be provided, if requested, is to put the user in touch with a specific faculty member. On the Contents page, Dr. Universe says "If you'd like to contact any of the faculty members who have answered questions for Dr. Universe about their research, scholarship or creative work, just e-mail the Dr. -- she'll put you in touch with the person behind the answer! (http://www.wsu.edu/DrUniverse/Contents.html)." Many of the answers provided by Dr. Universe, however, do not mention particular faculty members or indicate who provided the actual answer to the question.

There are several locations on the site that warn the user that it will take some time for Dr. Universe to answer the questions that are submitted and to ask users to be patient. From the Contents page, there is a link to a section called "Hey Kids". This page expresses pleasant surprise over the number of questions that have been submitted but warns that it might take a little while to get to them all. Once a question has been submitted, there are two further cautions that there may be some delay in getting a response. Immediately after the question is submitted, the user receives a Thank You message for writing to Dr. Universe, and a request to please be patient as Dr. Universe is swamped. An acknowledgment is also sent to the e-mail address provided. This message also thanks the user for the question and says that it might take a while to get back to the user. There is no promise that the question will be answered within a certain time period.

The Contents page of the web site and the section called "Why Dr. Universe?" indicate that answers are provided by WSU faculty. Some of the questions, such as the featured question, do identify the faculty member providing the information. Many responses do not mention the name or qualifications of the person answering the question. According to the site administrator, Dr. Universe staff consists of the site administrator and a part time graduate student. Questions are also given to students in a science teaching methods class as a final test. In most cases, the types of sources or names of specific sources used by any staff member are not provided. There is also no discussion of the question answering process, other than saying that

Dr. Universe will get answers from WSU faculty.

There is no explicit statement about user privacy on the web site. The query form indicates that the submission of personal information is optional, and no personal information is displayed with the questions in the archive. The only personal information that is displayed with the questions is any information that was included in the query box when the question was submitted. There is also no statement of liability, responsibility or appropriate use.

Ease of Use

The service is very easy to find. There is a link from WSU's home page that leads directly to the Dr. Universe site. There is also a link from the WSU Research On-Line home page. The Contents page is the first page of substance that the user is brought to and it clearly displays most of the features of the site. The page is constructed using frames and the standard left side of the page contains links to: Today's Question; Featured Questions; Submit Questions; E-mail the Dr.; The Dr.'s Home Page; WSU Home Page; and Research at WSU. Below these links are brief instructions for submitting a question online and via regular mail and a statement about the sponsors of Ask Dr. Universe. In the main portion of the contents page, there are large icons with text below them that lead to the main sections of the web site. These include: Featured Questions; Today's Question; Find a Question; How can I Submit a Question; Links; and Dr. Universe Wallpaper. At the top of the page are two links, one to a section on "Who is Dr. Universe?" and one to a section called "Hey Kids", which explains that it may take a while for a response.

The Featured Question consists of a new question every other Monday that is answered at great lengths (current featured question, 2 pages) by a researcher at WSU. At the bottom of this section is a link that says "Translate to Spanish, French, German or Italian", and no further instructions. This link leads to the Alta Vista translation feature. A user could select the text of the question and paste it into the translator, but he would have to determine this himself.

Today's Question contains a new question posted by a user daily. The answer is no longer than those of other questions, and there is no indication why a particular question is selected as Today's Question. Find a Question accesses the Dr. Universe Archive. How Can I Submit a Question brings the user to the query form. The user always sees the contents of the frame on the left side of the page, which details the other two options for submitting a question: by e-mail, or regular mail. The Links icon brings the user to a page containing Dr. Universe's favorite links. These include links to museums, other Q/A services, and sites specifically for children. Dr. Universe wallpaper contains a picture of Dr. Universe and instructions on how to set it as wallpaper.

Administration

Currently the service is free. It receives no specific funding and is run along with other departmental duties. The site administrator works for both News and Information and the Office of Research. In addition to running Dr. Universe, the site administrator is the research news coordinator and editor of the research magazine. The graduate assistant is a doctoral assistant who is funded by a consortium of schools, which are funded in turn by a State Department of Education grant. The site is anticipating major support from a corporate sponsor in the near future. The level of funding has not yet been determined.

Staffing and Training

The site administrator and the graduate assistant answer questions. As mentioned previously, questions are also given to students in a science teaching methods class as their final. They are given a brief presentation on the approach to answering questions and the site administrator reviews their answers before they are sent back to the users. The graduate assistant received no formal training, but the site administrator reviewed her answers for the first few weeks. Some questions, although it is difficult to determine how many, are answered by faculty and researchers at WSU.

Answering Questions

On the web site, there is no mention of the steps that are taken to answer a question and there are no guidelines for question negotiation. Some messages end with "did this answer your question?" or "is this helpful?" These responses indicate that users are free to resubmit questions or rephrase them to elicit a more appropriate response. The answers do not appear to use templates or canned language. The responses are very specific to the particular question or questions they are answering.

There is generally not any personalization in the responses that appear on the web site, although random exceptions appear in the archive. The confirmation e-mail that users receive is addressed to the individual, in the form of "Hi Kristen!" Personal contacts through the web site are possible. Users can e-mail Dr. Universe directly and Dr. Universe will put the user in touch with a particular faculty member or researcher, if they request it. Dr. Universe responded to a direct query in connection with this evaluation within 24 hours.

The level of response varies from question to question. The answers range from a link to a web site to a sentence to a page or more. There is great variation in the amount of detail included in the responses. The response to a question about whether or not the Year 2000 problem is going to occur as many people fear was answered in five sentences with a promise that Dr. Universe would look into it further. A question on whether or not the year 2000 would be a leap year was answered in eight paragraphs and included a lengthy discussion and historical information provided by a historian at WSU. In general, the answers are informational rather than instructional. The responses are easy to understand and, according to the site administrator, the optional personal information is used to ensure that the level of the answer corresponds to the age or grade level of the user. This appears to be fairly accurate after inspecting questions in the archive.

Inventory Control

The service receives many more questions than they can answer. According to the site administrator, they receive an average of 600 questions per week and only respond to 15-20 percent of these. Questions are not rejected; they just are unable to respond to them. There is no mention on the web site, and the site administrator did not indicate, how questions are prioritized and allocated. All questions are acknowledged by a confirmation e-mail. The user is cautioned that it may be a while before he receives a response, but he is not forewarned of the possibility of no response at all.

Archiving

There is a searchable archive of questions called Find A Question. The archive contains copies of questions submitted and the answers that are provided by the service. There is no identifying information, except what the user included in the box with the question. The user does not have the option of excluding his question from the archive. The archive is searchable by keyword, or the user can choose to browse through recently answered

questions. Once a question has been retrieved, the searcher can view a list of questions that contain the keyword(s) in the question. The searcher than must choose SELECT to view the response to a particular question. No further information, such as date, information about the user, etc. is provided.

Hardware/Software

The host machine for Dr. Universe is a dual 450Mhz Pentium II machine with 512 MB RAM and 9GB hard drive. The backup drive is a 266Mhz Pentium II with 256 MB RAM and 3GB hard drive. Dr. Universe runs on Windows NT server and uses Microsoft SQL Server 6.5 as its database. Interactive web pages are built using Microsoft's Active Server Pages format. Other pages are standard HTML. A technical support staff member for the web site provided this information.

Acknowledgment

An automatically generated acknowledgment is sent immediately in response to all questions submitted to the service. The purpose of this acknowledgment may be to test the validity of the e-mail address, as in the AskEric service. The acknowledgment thanks the user for submitting a question and cautions about the response time lag. The acknowledgment also refers the user to the "Find a Question" section, so the user can check to see if his question had been submitted previously. Referring the user to this section before he submits his question may be more helpful. The user's question appears at the bottom of the acknowledgment.

Evaluation

No formal evaluation exists for the service. User feedback is not solicited. A user can e-mail Dr. Universe directly or send a letter expressing opinions on the service. There is no formal evaluation of responses to users' questions. After a several week period when the graduate student's responses were reviewed, they are no longer monitored. The responses of the students in the teaching methods class are reviewed prior to sending them to the user.

External Recognition

The service has received recognition through awards and inclusion in newspaper articles. Specific awards that the service has received include: ProjectCool Site of the Day; Yahooligans Cool Site; USA Today Hot Site; New Scientist Site of the Day; Popular Science 50 Best of the Web; and Netscape's What's Cool Pick. The service has had major articles written about it in the *Seattle Times* and other area papers and has been mentioned in articles in the *Wall Street Journal*, *USA Today*, *New Scientist*, *Los Angeles Times* and *The Baltimore Sun*. Based on the quantity of questions currently received and the service's inability to answer them, it does seem that the service needs publicity, although it could be helpful in leveraging corporate sponsorship.

General Comments

Overall, the service fulfills its mission to provide answers to questions that users ask. The service has some areas that could be improved with a larger budget and staff. It would be helpful to have documentation on the web site that would explain the policies and procedures of the service, including the process involved in allocating and answering a question. Information about privacy, liability, responsibility and appropriate use would also be helpful. Documentation could include information about staff so users would know who was responding to their questions and what there qualifications are.

There should be a standard format for the length of responses and the type of information included. Similar questions should receive comparable responses. Currently, some responses include extensive

answers with historical information and referrals to other books or web sites while other questions are answered with only the minimum information needed to respond to the question. Responses should also cite the sources used and indicate who provided the information. The name and position of a faculty member or researcher is sometimes included, but most often, that is not the case.

When submitting questions, it would be helpful if users had more information. Even simple instructions about forming their questions (use complete sentences, indicate what you already know) would be useful to both the user and the person answering the question. It would also be courteous to inform the users that there is a possibility that their questions may not be answered at all. The service could notify users that their questions cannot be answered at this time due to overwhelming demand and encourage them to resubmit their question at a later time.

Another area that could be improved is the archive. Currently, users can only search by keyword. They receive a list of questions that contain the keyword but have to select a particular question to view the answer. The questions contain no information other than what was entered into the query box. While it is not necessary, and probably would be unwise, to include a great deal of personal information about the user, the archive would be more useful if the query record also included at least the date and grade level or status of the user and allowed searching by these fields as well.

As a whole, the general appearance and organization of the service is good. The icons are easy to locate and it is easy to move from one section of the site to another. The user can choose to submit a question from any page within the site. Also, despite its limitations, the archive is easily accessible and the user can search to see if questions on his topic have already been answered or view previously answered questions to get a sense of question format and content. One useful feature is the option to contact a faculty member directly concerning his area of research. There was no mention on the web site of how often this takes place, but it is an interesting idea. The service is entertaining and would be easy for even a young child to use. The answers to some of the questions, particularly the featured questions, are detailed and interesting and contain references to historical information and referrals to other sources.

Sources

Correspondence with Dr. Universe site administrator and technical support staff member via e-mail, June 1999.

Go Ask Alice!: Evaluative Analysis

by Vera Welsh

Mission, Objectives, Statement of Purpose

Go Ask Alice! (http://www.goaskalice.columbia.edu/index.html) is a health-related question and answer (Q/A) Internet site created in 1993 by Columbia University's Health Education program. The mission of the service is to "provide factual, in-depth, straightforward and non-judgmental information to assist readers' decision making about their physical, sexual, emotional, and spiritual health (http://www.goaskalice.columbia.edu/about.html)." The following categories have been designated as topics that are addressed: 1) relationships, 2) sexuality, 3) sexual health, 4) emotional health, 5) fitness & nutrition, 6) alcohol, nicotine, other drugs, and 7) general health.

The site boasts that it is "the first major Internet health Q&A site, originating in 1993 (http://www.goaskalice.columbia.edu/about.html)."

Comments: Although Go Ask Alice! is described as a Q/A service providing information related to all aspects of health, the service has become well known (and criticized by many) for its discussion of sexuality among teens and young adults. Whether the site overtly encourages such questions or whether it is a natural occurrence due to unsolicited interest is debatable. Ergonomically speaking, the layout of the web site may promote a higher volume of questions falling under the "sexuality" and "sexual health" questions as the other categories (emotional health, fitness, etc.) are displayed on the bottom row of icons. Sexuality and sexual health as two different categories while alcohol, nicotine and other drugs are treated as one category may lead some to believe the layout of the site influences the type of questions that are asked.

Parameters of Service

- Lengths of responses tend to vary from 50 to 500 words on average. The only limitation placed on users is that they restrict the subject of their questions to the seven categories listed above.
- All questions are read but only a "limited number" are answered for future posting.
- There is no indication that repeat use is discouraged or prohibited.

Comments: It is interesting to note that the service does not respond individually to the sender, but rather the sender will hope to see his/her question and answer posted on the site in the future. A sender will therefore not know why his/her question was not answered and may wonder: was it beyond the scope of the service? perhaps it was already posted in the archives? perhaps the answerer did not understand the question?

This practice also increases regular readership of Go Ask Alice! by those who sent a question, as the sender will regularly check to see if his/her answer has been posted yet. Something to the effect of "if your question has not been posted within two weeks, assume it will not be" would be a welcomed notation on the site. The site boasts that it is "accessed more than 2.5 million times a month;" a large percentage of those accessing are most likely looking for their question to be posted, not necessarily reading other questions and answers!

Identifying the Clients

- Inquiries are anonymous. The addresses are electronically scrambled prior to reaching Alice's e-mail box. Initially the service was limited to Columbia University students only. However, the site became so successful that it was opened to the public.
- The service does not request that any personal information is revealed from the sender (this includes those most basic - name, e-mail, age, grade level, etc).

Comments: Due to the personal nature of the types of questions that are asked and the age group that frequently uses the service (high school and young adult), the sender is granted both privacy and safety by not revealing personal information.

This lack of identification is also valuable due to the personal nature of the questions that may be asked; a reluctant yet interested user may be more likely to use the service knowing that a guaranteed anonymity will be maintained.

Due to the fact that the messages are not grouped according to age or education level, the service had to determine an overall level of sophistication to be used in answering questions. This is where the service may have become characterized as a site for teenagers and young adults without specifically stating that fact as the lowest common denominator was chosen. Generally, questions are answered at a level which a high school student can read and comprehend. Ask Alice! further adds that teachers may find some of the questions and answers useful in developing curriculum.

Query Form

- Although a form is provided, it is simply for the purpose of asking the question. Additional information is not requested, nor is guidance provided about how to phrase a question or what type of research has been previously carried out, as seen in some other Q/A services.
- E-mail is the only option for sending a question.
- Due to the popularity of the site, a number of newspapers and columns have expressed interest in using the questions and answers in their publications. Users are warned that these requests are not accepted in the question form. A separate link is provided for such inquiries. Comments and corrections are also not accepted as part of the question form. Users are linked to another form, which is prefaced by stating that a response is not guaranteed due to limited time and staff resources.

A review of the site leads me to believe that the intention of Go Ask Alice! is not to serve as a personal Q/A service for an individual, but rather a means of soliciting questions that others may benefit from or be interested in reading as well. This suggests that the criteria for posting answers include the topic's being interesting or useful to a large portion of the potential audience.

Responsibility to the Clients

- Because personal information is not solicited, user privacy is not addressed, except in terms of reminding users that personal information is not required.
- Answerers are comprised of a team of Columbia University health educators and health care providers, as well as information and research specialists from health-related organizations worldwide. The names of persons and these organizations are not provided.
- Users are informed that only a certain number of the over 1,000 questions sent each week will be answered and posted. (As noted earlier, this comment is extremely vague and leaves the user with little faith that his/her question will ever be one of the few posted).

- Prior to asking a question, the user is informed of a standard medical disclaimer, reiterating that all questions are not posted and therefore immediate responses should not be expected, the health information should not be considered specific medical advice, etc.
- Users are encouraged to check the archives before asking a question. The archive contains over 1,500 questions and answers from the past.

Ease of Use

- The site is easy to use with an immediate link to the question form, information about the service, searching capability (and instructions on how to search) of the archives, as well as links to the specific categories with previously answered questions specific to that category listed. The site also uses includes advertising where its latest publications are displayed with a link to purchase/order information.
- The e-mail address and other contact information are not provided for Go Ask Alice! Forms are followed by the submit button. This is the only direct means of communicating with the service. If one's browser does not support this type of arrangement, contact is not possible. There is a link provided to the homepage of Columbia's Health Department (sponsor of the service) with a web master's, address and contact information of faculty and administrators (names, phone number, address). However, it would most likely require several attempts to track down the appropriate source.

Administration

- The site is created and maintained by Columbia University's Health Education program. Information relating to specific funding is not discussed (e.g. grant, department budget, etc.)
- Details of staff organization, influence in policy making, recruitment of answerers, etc., are not revealed.
- Copyright is discussed but not as it relates to information used to answer a question but rather as it is used to protect the information produced by the service. Permission must be granted by Go Ask Alice! in order to publish or use the questions and answers by another individual or organization.
- People (as opposed to an expert system) answer questions. It is unknown as to how questions are distributed, the order in which they are answered, etc.
- The site offers no information on emergency or scheduled shutdowns. This would be useful information considering a university operates it. One wonders, for example, if it closes during academic recesses.

Answering Questions

As alluded to earlier, very little is known about the answering process based on information available on the site. Once a user sends a question, it may or may not be answered. Question negotiation/reference interview is not an option because the user's e-mail address is not requested. This results in an answerer reviewing a question and answering what he believes is the question. A user may view his/her question on the site and realize that the original question was not really answered. Questions are not referred. Several answers included links for additional information (e.g. a questions related to cancer provided a link to the National Cancer Society web site). Sources of answers are provided when used. Internet, print, and institutional sources are referred to and cited according to the Go Ask Alice! fact sheet. The majority of responses, however, seem to be based on expert knowledge.

Inventory Control

It is not known how questions are queued or ultimately selected. Criteria

and/or guidelines are not provided on the site.

- Response time is not provided nor is there a guarantee of a response at all.
- Every Friday, new questions and answers are posted. A link from the home page provides access, entitled "New Alice! Q & A's of the Week."
- Questions that do not meet the guidelines are discarded. A reply is not given to the sender due to the fact that contact information for the sender is not solicited.

Archiving

- A searchable archive is available containing over 1,500 previously posted questions and answers.
- Instructions and suggestions on how to search are provided.
- The questions are arranged according to the seven topics outlined by the service, followed by a keyword representing the subject of the question in HTML (e.g. drinking water in NYC or bathing - how often?). Searching may be done by subject or title key word. It is unknown as to how long a certain item is archived, why certain questions are archived and not others, who manages the archive. It can be assumed that questions and answers deemed of greatest interest and still relevant are chosen to be archived.
- The date in which the answer was originally posted is provided at the end of the question; this is a valuable piece of information.
- There are no FAQ links as seen in other services.

Comment: The archive is useful and the broad subject breakdowns provide some organization. However, efficient searching is somewhat challenging. Unless a user uses the exact wording used in the question/answer or can deduce what the question is about based on a word or phrase used to represent the questions, he will probably browse through several archives before retrieving what he/she really wants.

Quality Control

- The following statement is made regarding quality: "Responses undergo a standardized review process to insure high quality and accuracy.

Comment: Again, it is not known what the review process entails, but it is reassuring to know the service recognizes the need and has a system in place.

Hardware/Software

- The hardware/software used by the system in unknown

Acknowledgment

Question Negotiation

Neither of these is possible because the user submits no personal information.

Response Guidelines

- The response falls under the category of "free writing"; forms, templates, etc. are not used.
- All answers are signed "Alice" as opposed to providing any personal information.
- As emphasized in the Go Ask Alice! Fact sheet, the service strives to provide objective responses. In the case of sexuality for example, this is critical. The service does not condone or advocate a certain group of values or morals.
- Answers to questions are in the form of answers, as opposed to any type of instruction or steps to find an answer. When additional information is provided, included in the answers are the citations or web links to the sites.
- It is assumed that ineligible and inappropriate questions are discarded, along with those not answered due to high volume due to the fact that contact information is not solicited from the sender.

- Generally, in answering a question, it appears that anyone with at least a high school level of reading and comprehension could easily understand the response. Although the site states its audience includes high school, college aged, parents, professionals, etc., the answers are presented at the lowest level of audience.

Evaluation

Information about evaluation of the service is unknown. The service has been in place for over six years and attracts a high volume of users, both for asking questions and for browsing. The site reveals numbers on the specific volume of questions asked and the number of time the site is accessed, so statistics are being maintained.

External Recognition

The Go Ask Alice! site provides a list of over twenty well-known organizations and publishers that have praised the site, including *The New York Times* and *Harvard Health Letter*.

KidsConnect: Evaluative Analysis

by Kathleen Feeney Chappell

Mission, Objectives, Statement of Purpose

KidsConnect, located at http://www.ala.org/ICONN/AskKC.html, is a free online question and answer (Q/A) and referral service meant to help K-12 students find information on the Internet and elsewhere to use for school projects. The name makes more sense after a user sees the service: connecting K-12 students to resources. But, if all that is known is the name and that it is a Q/A service, the name is not very descriptive. The KidsConnect home page indicates that KidsConnect is meant to help K-12 students find Internet and print resources to use for assignments. If the user follows the link to the information for teachers, parents and school librarians, that page, too, says the service is intended to help students access and use the information available on the Internet effectively and efficiently. The user will get a better idea of the service's mission if he or she reads all of the information on the site, but most users will probably only look at the first page.

Parameters of Service

The service is aimed at K-12 students, and the answers consist of lists of Internet sites and print resources relevant to the user's query. It is meant to help students with their assignments for school. There are no limits on how many questions can be asked, which types, length, etc. From the web page, the user cannot tell if KidsConnect rejects questions. It seems as though all questions submitted will be answered. The only limits on the service appear to be that, since the service has a 2-school-day time limit, users cannot ask for information they need to use right away.

Comments: The idea of providing the students with only lists of sources to consider is an interesting one. It almost completely removes the issue of whether or not the service provides factual or correct information (although the links and citations provided have to be accurate, of course). It also serves to educate the students, teaching them how to find resources on the Internet. Since the users are not provided directly with the information they are looking for, it seems like there is a better chance that they will learn something beyond the factual information they have to find for their assignment.

Identifying the Clients

KidsConnect clients are K-12 students who need help finding Internet and print resources for school assignments.

Query Form

The form asks the student to provide:

1. First name.
2. E-mail address.
3. Grade.
4. Topic.
5. Resources previously consulted.
6. Kind of assignment (with examples "science fair project? five page report? chart with information? something else?").
7. Question.

The user can also just send an e-mail, and all the same guidelines are suggested.

Comments: I like that the question components are included in two different ways; it seems that there is a better chance that the users will include everything this

way. It is also good for the users who do not use the form, since they will know what to include in their question. Asking only for the first name allows the responses to be personalized but removes some privacy concerns.

Responsibility to the Clients

KidsConnect indicates it will provide the client with suggestions of good web sites and other resources to look at for help with his or her assignment. The web site states that answers will usually be returned within 2 school days, that the answers will be provided by volunteer school librarians, and that the types of sources users will be referred to include web sites, encyclopedias, almanacs, books, magazines. All of this information is provided on the first page, before the user gets to the query form.

The KidsConnect service does provide information about how the questions are answered, but the user has to look for it. The first page of the web site, the one aimed at kids, only tells who will answer the question; the page for parents is not much more informative; the page for school librarians who want to volunteer for the service is much more explicit; explaining how the volunteers are organized into teams and that team leaders distribute the questions to the volunteers.

Comments: I like that there are separate pages for the kids and the adults to look at, since putting detailed information on the page aimed at the kids would probably make it too long and it would just get ignored anyway. By sending the adults to a different page, the people who are more interested in the information can learn how the service works without having the information clutter up the page with the query form. It is good that it exists online, though, and kids who were really interested in how the service works can look at it, too.

The service does not address user privacy, and there are not really any statements of liability or responsibility. There is a statement on the page warning users that not all information on the Internet is reliable and that they should check with their own school librarians for help. The volunteers are also instructed to encourage the students to check with their school librarians in every reply they send. There does not seem to be much liability involved with this service, since it does not actually providing the user with answers, just guidance about where to find answers.

Ease of Use

The query form is at the bottom of the first page, after the introductory information. The user can also click on a link near the top of the page to take them directly to the form or the e-mail address. This means that even someone who uses the query form can see the e-mail address for the service. The only choice for getting a response seems to be e-mail, because the form does not ask for phone numbers or give the user other response options.

Comments: Setting up the page in this way, with the form at the bottom but with an option to go straight there, seems like a good idea to me, since it means that repeat users can skip over the basic information, which they have already seen. The information at the beginning about what to include in the question is reproduced on the form, so that does not get lost, and, if a student has used the service already, he or she should know what to expect in terms of an answer.

The page with the query form recommends that the user look at the site's Frequently Asked Questions (FAQ) and the KidsConnect Favorite Web Sites resources if he needs help fast, but it does not instruct him to look there before asking a question or instead of asking one.

Comments: This seems like a more user-friendly format than the services that say, "You MUST check to see if we've already answered your question before you ask it." It makes it seem as though KidsConnect is really there to answer questions, not scare away users. Maybe this service gets less use than some others do, though.

Administration

KidsConnect is funded by Microsoft (the page says it is "underwritten" by Microsoft, which makes it sound more pleasant). There are several other organizations involved with the project, which is a part of ICONnect, an initiative of the American Association of School Librarians (AASL), a committee of the American Library Association (ALA). Syracuse University and AskERIC, which is based at Syracuse, provide design, development, and technical services for KidsConnect (Microsoft ..., p. 229). In an interview with the Virtual Reference Desk, Blythe Bennett, the coordinator of the service, explains that the service was originally conceived of as a kids' version of AskERIC (http://www.vrd.org/AskA/Spotlight/spotlight_KC.html). The user is unable to tell from the web site how these groups work together and who has how much say in what. It does seem that AASL is the major player though, since all of the volunteers are members of this group.

Staff is organized into teams of 8-10 volunteers who work during the same month and (it seems there is a month-on, month-off system in place). The librarians are grouped by level: elementary school librarians answer questions from elementary school students, and so on. Each team has a team leader who serves a mentor to the other team members, distributes the questions, does any necessary trouble-shooting, and monitors the quality of the responses written by the other team members. Each team has a partner team, which volunteers in their off-month. The larger structure of the organization is unclear from the web site, though. It is not apparent from the web site, for example, how the service fits into the AASL structure .

Similarly, it is unclear whether KidsConnect has general emergency procedures or how much the staff of the service is involved in making policy decisions like these.

Staffing and Training

Volunteers answer the questions submitted to KidsConnect. The volunteers are all K-12 school librarians who are members of AASL; as of May 1999, KidsConnect had 230 volunteers. There do not seem to be any qualifications required beyond these professional ones, and volunteers do not even have to have a lot of experience using the Internet. Librarians can volunteer for the service through the web site. Volunteers are also recruited through postings to school library listservs and in professional publications, as well as through presentations at conferences (Bennett, p. 126). It is unclear how long most volunteers remain involved with the project.

Comments: KidsConnect seems to serve as a public relations tool for the AASL members. Each response encourages the student to consult with his own school librarians about the questions he submits. I also think it is good advice though.

The volunteers must go through on-line training, which, according to AskA Starter Kit, involves reading an online manual describing the service, looking at information on how to search the web and answering practice questions. The new volunteers answer several questions that have been previously answered by the service; their responses are reviewed by the service coordinator or another trainer and returned with feedback. This review

process continues until the trainers are satisfied with the quality of the responses and the volunteers feel comfortable enough to answer questions on their own. After this point, the librarians join a team of question answerers. Volunteers who do a good job answering questions have the opportunity to become team leaders, who check over the responses of team members (Bennett, pp. 126-127).

Answering Questions

The questions are sent to the KidsConnect main address and are routed to volunteers by the team leaders. After each question is received, the server sends an automatic response to the sender, stating that the question has been received. The volunteer librarians answer the questions and send the responses back to the student (or to the team leader, who checks quality, then to the student? This is unclear). There do not seem to be question negotiation guidelines, templates, or much personalization provided in the answers. The librarian signs the response with his or her initials, based on responses in the FAQs. Personal contacts do not seem to be encouraged.

The KidsConnect web site does not give very much information about how questions are to be answered, other than saying that volunteer librarians should tell users to consult with their school librarians. This could be seen as a method of referring the question, but there are always resources provided in the answer, too. It does not seem that the librarians refer the questions to anyone outside KidsConnect.

Inventory Control

When a question is sent to KidsConnect, it goes to the main account, and the team leaders distribute the questions to the volunteers. From the web site, it is unclear how this is done, if certain librarians answer only questions on certain topics or if questions are prioritized on the basis of how easy or hard they will be to answer, or if questions are ever rejected completely. According the VRD interview with Bennett, inappropriate questions (defined by her as questions that are not from K-12 students or parents, teachers or librarians dealing with this age group, and questions asking for advice instead of resources) are deleted from the service's inbox, and the questioner is notified that the question is out of scope. Presumably, time is a factor in determining which questions to answer first, since the service aims to answer all questions within two school days. There are no guidelines on the web site that instruct volunteers how long to spend attempting to answer an individual question.

Coping with Unexpected Demand

It is unclear whether the system experiences scheduled down times and, if so, if they are communicated to the users. It is also unclear what would happen to the system if there were more questions than it could handle if the system crashed.

Archiving

There is no archive of KidsConnect questions available on the web site, although there is a list of frequently asked questions. The FAQ is indexed by subject area and by topic. It is not searchable. There is no information on the web site about how questions and answers are chosen for the FAQ or how it is related to an archive of questions, if one exists.

Comments: The list of subject headings for the FAQ is broad, while the list of topics is very specific, including "Biomes," "Martin Luther King, Jr.," and "Toothpick (and Other) Bridges." No context is given for the questions that are included, which is too bad. Some of the questions are broad enough that the resources given for them could be useful for other questions, but the web page does not tell users this. Users may be able to extrapolate from the Martin Luther King question the fact that they can

search for information on another person by doing a similar AltaVista search, but it would be helpful if the page mentioned this.

Quality Control

The team leaders monitor quality of the answers, but it is not clear from the web site what standards they use, nor is it clear what happens to an answer that is considered inadequate.

Hardware/Software

The web site does not give any information about the hardware or software that KidsConnect uses. In the VRD interview, Bennett states that KidsConnect currently uses the PINE e-mail system for routing and answering questions. However, the service plans to switch over to Eudora in the future.

Acknowledgment

An automatic message is sent by the server upon receipt of a question, informing the user that the question has been received. It also reminds users to cite the sources they decide to use for their assignment.

Question Negotiation

The web site does not mention anything about question negotiation. It seems unlikely that question negotiation would happen often since the service is striving to meet the 2-school-day time limit.

Response Guidelines

Based on the messages that are in the FAQ, the responses are free form. There seem to be no limitations on the length of the answers provided; in fact, some of them are quite long, providing links to many web sites and several citations for print sources as well. Since the volunteer librarians are not actually providing factual answers, they do not have to document sources. However, if the librarian used a web search engine like AltaVista to come up with web sites on the topic of the question, the answer includes the search terms the librarian used. Including search terms is a good tactic because it enables the student to redo the search at a later date if desired, and it may help him learn about online searching, as well.

Several things about response guidelines are not explained on the web site. It is not clear whether there are policies for dealing with questions that are confusing or outside the scope of the service. Presumably the volunteer librarians will use the grade level specified by the student on the question form to tailor their answers, but it is unclear how this is done or if any other factors influence the nature of the response. It is also unclear whether there is any policy about the sources to be used; the web site includes a list of "Favorite Web Sites," but it is not clear from the site if the volunteers are encouraged to use them in their answers. It was not evident from the site if KidsConnect has a private archive, so it is not possible to say if old answers are recycled for later use. The web site also does not mention whether the questions received are prioritized in any way or if they are just answered as they come in.

Answers are returned by direct e-mail to the student who asked the question within two school days. It is not apparent if the student can request clarification of the answer he or she was given or if further dialogue with the service is encouraged.

Evaluation

The only information the KidsConnect web site gives about evaluation is that the team leaders monitor the quality of the answers that the volunteer librarians provide, but it is not clear how this is done. It is not clear if the service maintains any statistics on use or customer satisfaction.

External Recognition

The site does not seem to have won any awards.

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LawGuru.com BBS: Evaluative Analysis

by Bryan Fagan[1]

The name of the site is LawGuru.com, although the name of the actual "Ask a" service is never clearly stated; Pitsco's Ask an Expert lists it as "Ask LawGuru.com," and the site itself calls it "LawGuru.com BBS" most frequently. It also uses generic language such as "Legal Questions" and "Find Free Answers to your Legal Questions," however. **"LawGuru" does seem to get across the message of the site, that it will answer user questions, and "free" is emphasized so much it is almost impossible to miss.** The URL for the main site is http://www.lawguru.com/, and the actual question form is at http://www.lawguru.com/cgi/bbs2/user/submit.cgi. The site's goal is to "try to help people find free answers to some of their legal questions." **This is relatively obvious once the question part of the site is reached, although it is not well stated from the front page of the site.**

The service answers both simple and complex legal questions, although the accuracy of the more complex cases is obviously affected by the amount of information the user puts into the question. The service rejects few questions on the basis of relevancy; the rest are either answered by the Los Angeles law firm that operates the site, Eslamboly & Barlavi, or posted on the site. Eslamboly & Barlavi answers all the questions that fall within the specialties of the attorneys at their firm, but the site does acknowledge some questions will not be answered even though they are posted because no lawyers affiliated with the service practice in the specified state or area of law. Users are asked to keep their questions to one short message per form.

The intended users for the system are users of the web who have a limited knowledge of the law. The only common characteristic is access to a computer. **The BBS covers such a wide variety of types of law that it does not seemed to be aimed for a specific legal niche: categories include areas such as criminal, environmental, bankruptcy, divorce, and aviation law. LawGuru.com seems to try its best to make the service inviting to all people who have questions about the law. On its question form, there are even blanks for foreign locations.**

Both forms and e-mail communication are acceptable ways to send questions, although it is quite clear that the form is preferred. Name, state (for purposes of determining which state's laws are applicable; uses a pull-down menu), zip code, e-mail address, heading, area of law (uses a pull-down menu), and the question are all required blanks on the form, each marked by a small red square. **Heading and area of law seem to combine into a "subject" area.** Users who opt to use e-mail (lawguru@lawguru.com) are given little if any guidance. **Presumably, the form should be used to guide the form of the e-mail.** No guidance is given on how to ask a question, although users can search for questions that have been previously asked to determine which received the most complete and lengthy responses. **Although this seems like a shot in the dark, studying questions in the same area as the user's question is a good predictor, since**

1 The author's comments are in bold.

the same attorneys will be answering the questions. However, users may not think of this approach, and it certainly is not spelled out.

In addition, users are required to type "I agree" to a release that allows Eslamboly & Barlavi to post the user's question. **Although this seems unusual, it is logical that a law site would want to cover itself and would realize that clicking radio buttons does not convey the level of comprehension that having to read through a disclaimer to find out what to type in a blank does.** Blanks for firm, street address, city, country, non-U.S. state, day and evening telephone numbers, and fax numbers are also present, and a pull-down menu allows users to choose a different state if the legal question they are asking about does not correspond to the state in which they reside. In addition, a section marked "To be able to serve our users better, we would also be interested in knowing" solicits information about users' age and occupation, and it asks how users heard about the service. **No mention is made anywhere on the site about how this information will be used.** It also allows users to specify whether users would like to be automatically informed when the web site is updated.

The question-answering service is one screen down from the top and not given much fanfare, but it takes only one link to reach it. The top of the page is dedicated to a banner advertisement, a "What's New" statement, and legal search engines. The "Legal Questions" section actually takes up less space than any other feature on the front page of the site. Besides the main link from the front page of LawGuru. com, there is also a "Questions and Answers" link on the same page; it is **not at all obvious that this link leads to the question-answering section, and the title of the link is rather generic rather than evoking any sort of an "Ask a" service.** Other than the in obvious "Questions and Answers," navigating the site is simple and self-explanatory.

The service makes it clear users will get a response to their questions only if they meet the legal expertise of the lawyers associated with LawGuru.com. The service goes to pains to remind users that answering questions does not in any way establish a lawyer/client relationship. As soon as a question is received, the system automatically sends the user an e-mail stating that, when the question is posted to the BBS, which can take up to two weeks, the user will receive another confirmatory e-mail. **When I asked a question to the service, it took only one day for the question to be posted. Obviously, turnaround time can vary greatly.** Eslamboly & Barlavi takes the first shot at the question. If it is outside the firm's purview, which almost all questions dealing with state law other than California's will almost certainly be, the question will be posted to the BBS, and lawyers whose profiles are matched to the question will be notified by a computer program. The lawyers use their own expertise to answer the questions. When a response is posted, the user will get another e-mail. The site's procedures for distributing and answering questions are repeated throughout the site, appearing on the help page, the main question service page, and on the page with the question form, although it does not mention what resources the lawyers will use. **The redundancy of these procedures gives even the most careless users a chance to understand what is happening.**

The site's commitment to privacy is detailed on the page with the question form. Personal information, which includes name, e-mail address, phone number, etc., is obscured from all members of the BBS, including member attorneys. Only the administrators and attorneys from Eslamboly & Barlavi can access that

information. In addition, privacy is addressed on the disclaimer page, reminding users that transmissions on the Internet are not always as private as intended, and users are transmitting the information at their own risk. The disclaimer states that the service is "provided for... information only and should not be relied on as legal advice." Furthermore, the disclaimer warns users not to rely on information gleaned from the site without consulting a practicing lawyer. Users are warned that no client-attorney relationship is established between the users and either Eslamboly & Barlavi or the lawyers who answer their questions. The accuracy of answers is not guaranteed, and none of the information on the site should be taken as an endorsement of a product or service (in the case of banner ads or law firms who answer the questions). **Unsurprisingly, a law "Ask a" site tries to cover its legal bases, although the disclaimers are short, to the point, and easily comprehensible.**

The main page of the service sends the user to "Internet Law Library" (http://www.lawguru.com/ilawlib/index.html) and the "Legal Research Meta search page" (http://www.lawguru.com/search/lawsearch.html). The service itself directs the user to previously asked questions as much as it directs them to ask their own questions; when the option is given, the archive of previous questions is mentioned first. The destination e-mail address is not explicitly listed on the form, but it is not difficult to figure out the information will go to a central distribution address at LawGuru.com. The information is posted on the BBS only, although confirmatory e-mails are sent when the question is received, posted, and answered.

The service is operated by a commercial law firm, and the firm also solicits commercial advertisements **(banner ads for mortgage and finance companies were easily apparent when I visited the site; other businesses may also advertise).** No fees are charged, and "free" access was stressed throughout the site. The advertising and vested interests of one law firm does have a chance to influence objectivity, although the disclaimer states that ads or other information should not be seen as endorsements. There is a potential, not adequately addressed in disclaimers, for Eslamboly & Barlavi to use the service to tantalize users (e.g., overestimating the chance of a successful court action without completely revealing the law behind it and telling the user they have handled many such cases). **I did not see any evidence that Eslamboly & Barlavi did this, but other law firms seemed to be more interested in attracting clients than answering questions. Also, one of the first points mentioned on the volunteer application page is that it can be used to attract business. Law firms may see this not as a service but as a way to draw new clients by any means.**

"Staff," as in those who answer questions for the service, are not arranged in any manner specified by Eslamboly & Barlavi. An expert system matches the state and subject area of a question to the profile filed by a lawyer, and every lawyer whose profile matches the specified state/subject criteria is notified when a question is posted to the BBS. None of these attorneys is required to answer, however.

The ethical/privacy statements are comprehensible, readily apparent, and easily accessible. The site does not, however, address copyright, fair-use, or selective dissemination of information questions. As stated above, Eslamboly & Barlavi makes no guarantee of the accuracy of the information on the site. No general emergency procedures are listed, and there is no mention of staff involvement in policy development. **The latter is not surprising, given the extremely voluntary nature of the service.**

Volunteer lawyers in more than 350 firms staff the site across the country. A law degree seems to be the only qualification needed, although malpractice insurance information is required in the attorney volunteer application. (Name, firm, number of attorneys in the firm, mailing address, states in which the firm practices, a phone number, an e-mail address, areas of practice, Bar number, length of service to the Bar, and whether the lawyer is an insurance defense attorney are *required.* Other phone numbers, fax number, other e-mail addresses, and web page are asked for but not required. Attorneys are also required to choose their own login and password for the BBS, and they can also specify what appears in their public profile on the site, including a blurb about themselves.) The service does not recruit, as such; lawyers find out about the service through the web site, word of mouth, mailing lists, news groups, etc. Apparently, all who apply are accepted. **Since more than one lawyer can reply to a question, having many lawyers in a subject area can be an asset rather than liability since questions are not divided between a pool of experts. A variety of expertise and experience is encouraged.**

Training is minimal, restricted to a few general guidelines for lawyers on the attorney application page. **This lack of training, along with a lack of quality control and other reasons, lead to a considerable variance in the quality of responses.** There are no seniority benefits l increased responsibilities for those who have been with LawGuru.com the longest. No information about the expected time commitment was available on the site.

When a question is received on LawGuru.com BBS, a confirmatory e-mail is sent to the user. Then, an attorney at Eslamboly & Barlavi reviews the question; the question will either be answered by the firm, in which case the answer will be e-mailed directly to the user, or it will be posted to the BBS. If it is posted to the BBS, the user will get another e-mail to update him/her on the status of the question, and attorneys whose profiles are matched to the criteria of the question by the site's software will receive an e-mail apprizing them that the question has been posted. Lawyers will review the question and respond; multiple unique responses can be attached to each question. Each time an answer is posted to the question, the user who posted the question will be notified via e-mail. Like the Mad Scientist site, the question and answer(s) cannot be viewed at the same time; however, LawGuru.com differs in that users click on the question first, and links to all answers that have been posted are listed. Each answer is given a separate link and page. **Although this is more difficult to navigate, it does help separate the responses, which competing lawyers will no doubt appreciate.**

Volunteers cannot negotiate questions with users because all personal information is withheld, and no one is under any obligation to answer a question. **In any event, LawGuru.com and its volunteers are probably eager to avoid anything that resembles a client/attorney relationship.** Templates existed in version 1.0 of the site's software, but version 2.0 does not support them yet. Personalization of responses is vital; it is the only way users can communicate with lawyers who replied to their question if they want to consult. Most referrals given on the site are very general, as in "Consult with an attorney," although those who ask questions that are not covered by LawGuru or contain insufficient information to be answered are directed to "other possible sources of information," according to Bahman Eslamboly. Sources to answers, in the form of legal codes and statutes, are given occasionally, but there seems to be no hard-and-fast rule about citations. No substantive guidelines about

the nature or time of the response exist on the site.

After questions are either answered or posted on the BBS by Eslamboly & Barlavi, they no longer receive attention from any specific person. Because of the BBS system, no question receives priority over another: even those that have not been answered are not given preference over those that have already have been. **This does not help users, but at least it ensures responses will be given by someone who actually wants to answer. Certain areas of law that are more profitable may receive more attention than less profitable ones, however.** All communications are immediately acknowledged, usually in an automatic e-mail. There are no guides on how much time should be spent on questions or on what is done with inappropriate questions. The site also does not mention anything about scheduled downtimes or system capabilities. Even though the site does not tell users about how interruptions of service will be conveyed, users have the option, when sending feedback or a question, to specify they want to be informed about changes to the site.

The site has no archive *per se*. Each question is posted to a BBS and stays there perpetually, though, so users can see the questions that have been asked. The BBS is accessible by anyone and includes all questions asked throughout the BBS's history, so it is not selective in the slightest. The BBS contains over 3,500 questions and answers. The purpose of the archive is the same as the question-answering service: to help people "try to find answers to legal questions." No personal information is attached to any of the questions in the BBS. Users are not allowed to specify that they do not want their question posted to the BBS, **although given the system in use at LawGuru.com, not wanting the question posted would be nearly tantamount to not wanting the question answered.** The BBS is easily searchable by state and subject area or by keywords. There is no FAQ, although there is a "Help" section that seems to answer basic questions about how the question-answering service works.

Centrally enforced quality control is absent from the site, although employees of Eslamboly & Barlavi "sometimes" review the answers. However, **since more than one lawyer is allowed to answer each question, answers can be compared to one another for some questions. Although lawyers may try to curry favor with users by providing the information users wish to see, this approach can encourage competition to provide the best answers.** The site does not mention what becomes of answers or volunteers that are deemed to be of "inadequate" quality.

All questions are immediately acknowledged by computer-generated e-mail that contains no human input. The e-mail contains the date the question was received and the title of the question. User are informed that "BBS administrators have been alerted that a new question has been received" and that they will receive another e-mail informing them of whether the question has been accepted or rejected. The message also mentions it may "take a couple of weeks before our question is reviewed prior to posting."

Responses to the questions are generated from free text. Lawyers responding to questions have the freedom to respond in any way that they think will answer users' questions. Few constraints are placed upon the responses at all, as lawyers are allowed to use their own judgement on what to cite (if anything), how much judgement to include, and how long the answer should be. However, the emphasis is on getting answers to users of the service, so answers contain more actual information rather than instruction. **This is natural enough, considering the fear most people**

hold "legalese" in and how monolithic and impenetrable laws and rulings can seem to users. Occasional law citations are included as well. There are no ineligible questioners, but inappropriate/incomprehensible questions are referred to "other possible sources of information."

Answers on LawGuru.com seem to reflect knowledge that the most of its users are laymen and will not understand jargon. No restrictions are placed on what constitutes a relevant source and when one should be used to answer questions. Previous answers, including, occasionally, previous answers for the same question, are available for volunteers who need guidance for the structure of their own answers. Most answers (those not answered by Eslamboly & Barlavi attorneys) are posted on the bulletin board, and the users get e-mail informing them that an answer for the question has been posted. Users whose questions fall into the area of expertise of a lawyer for Eslamboly & Barlavi will get a direct e-mail answer to their questions, however. No direct clarification can be requested through the service, and clients can either follow-up by contacting the lawyer who answered their question or by asking LawGuru.com another question. No policies on acceptable response times or priority exist. Since it is difficult to attach non-textual materials to a BBS answer, the possibility is not covered in policies, nor is there a policy on referring users to non-text resources.

LawGuru has no formal evaluation program in place, although they do collect information that is not used in answering the question from each user.

The site has won several awards, including the World Wide Legal Information Association's Five-Star Award, the Starting Point (http://www.stpt.com/) Choice Award, and oddly enough, the Adult Webmasters' Excellent Resource Award. **Make what you will of that last one; the "Adult" means exactly what you think it does.** It has also been listed as an "exceptional site" by Pehrson Web Group Mentoring. A few articles in the general legal press mention LawGuru.com, but most of them concentrate on the legal search engines on the main page. Only one article mentioned the site's "ask a" service, and even that was only in passing.

Overall, the site is not governed much at all. Eslamboly & Barlavi seems to provide the forum for the service and skim the questions it wants to answer off the top more than it seems to administer the site. In some ways, the freedom works well; attorneys who are the most interested in a question are the ones who will answer it, and if there is any follow-up, those attorneys will be in the best position to work with the user. However, this freedom also allows user questions to go unanswered, and questions can languish in the BBS for months without a response. Answers can also show a great range of quality, but this is not uncommon, even with "Ask a" sites that have a great deal of traffic and high standards of quality control, such as the Mad Scientist. However, Eslamboly and Barlavi's virtually hands-off stance on answer quality will probably only exacerbate the situation.

The Medical Edge's Answer Doc: Evaluative Analysis

by Rick Whitaker[1]

The Medical Edge (http://www.mededge.com/ is a profit-making organization, which provides a range of medical information online. Its electronic question and answer (Q/A) service is AnswerDoc (http://www.mededge.com/whoask.htm). This service offers several levels of electronic question/answer services, including both free and fee services.

Mission, Objectives, Statement of Purpose

The Medical Edge's mission statement is:

> The Medical Edge is an interactive online community resource designed to provide medical information, products and services to the health care consumer. Our goal is to become "The one stop shop for all your health care needs". We plan to appeal to the veteran Internet user and to draw the attention of those who have not considered the relevance of Internet technology in their lives. Aiming to bridge the gap between the digital revolution and traditional health care, we use the World Wide Web as a springboard to offer a broad spectrum of products and services to the US and abroad. We welcome your suggestions as we grow to serve you better (http://www.mededge.com/whomiss.htm).

The mission is readily apparent. It is obviously a new service, even by Internet standards.

Parameters of Service

The service offers e-mail answers to medical questions within 48-72 hours. The service answers

> any type of medical question you might have - whether it is a question about a current medical problem, a hypothetical question about a medical issue that concerns you or even general questions you might have from within the world of medicine (http://www.mededge.com/questarch.htm).

Its advertised answers range from the simple to the complex. AnswerDoc says:

> Answer Doc allows you to pose questions to medical professionals just as you would ask your own medical doctor. This offers answers to your personal health questions in a format that meets your needs and pocketbook. Our health care professionals are trained to answer your simple or complex medical questions - not designed to be a

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1 Additional information was solicited from The Medical Edge but no response had been received by June 9, 1999.

substitute for a physician visit, but a valuable resource for medical information that can save you time, trouble and worry when you need it. Services are available for immediate phone response, or 48-72 hour e-mail. In a situation where your doctor is unavailable or even unable to answer your medical questions we try to bridge the gap and provide you with the information you need (http://www.mededge.com/answer.htm).

The AnswerDoc home page has links to sample questions, archives, rates, and the query form.

AnswerDoc allows three levels of questions. The first level costs $39. It allows a telephone response immediately. The question may be simple or complex. The second level costs $29 and guarantees an e-mail response within 72 hours. The third level is free. There is no assured response time, there is no guarantee of an answer, and the user agrees that her question and response may be placed in the public archive anonymously. The free service imposes a 100-word limit to the question and answer.

Identifying the Clients

The intended user is anyone who would use any other medical service, who possesses sufficient computer access and skills, and who, for using the fee-based service, has a credit card.

Query Form

There does not seem to be a standard query form for the free service. The client is first given the option of the three levels of service. In response to his choice, he receives a disclaimer page. In substance, the lengthy disclaimer denies that the service is "practicing medicine," states that the information provided is purely informational, insists that it is in no way attempting to supplant one's personal medical care and cannot be considered as such, and generally implies that the user is not to rely on a word the service provides and that in any case the service is not liable for anything resulting from such reliance. For the fee services, the client must provide the usual credit information first. For the free service, after he agrees to the disclaimer, the move is to a blank screen. As noted, the user may access the fee service by telephone or e-mail, the free service only by e-mail.

Responsibility to Clients

In addition to the services and disclaimers noted above, the services promises response by "medical professionals," the "staff," "board certified physicians," although it provides no information about actual personnel other than brief biographies of the chief officers of the corporation. No fee request was submitted for this review, so it is not known if a medical professional is identified in the response or in the question negotiation. It seems obvious that a telephone interview would yield a real person. The free question submitted for the review was not answered. The user is assured of privacy and confidentiality.

Ease of Use

AnswerDoc is highly visible on The Medical Edge's home page with a link to a page describing AnswerDoc itself. A link to the query form would be five links from the Medical Edge's home page. The Medical Edge's home page identifies all avenues of service, information, and products, and for that reason is rather crowded. Although I am very skeptical of the purported altruism of "Mededge," (so far the free information request leads to a blank page, and the "archive" exists only in theory), the home page leads to a wealth of information, including a site medical reference file with 18 overall entries (e.g. mental health, women's health, cancer), each with 20 or

more entries), a hot link to Medline, a medical dictionary, and a listing of support networks. One of the services is "SelectDoc," in which one enters a profile for a physician and then receives a list of physicians approximating the profile.

Administration

Integrated Medical Technologies, Inc., the firm operating The Medical Edge, is a for-profit entity, so funding sources and staff input are not a public issue. Likewise, the internal workings of the organization are not discussed. The Medical Edge characterizes itself as friendly and invites public comment. No response has been received from the service about the blank page retrieved by requesting the free service.

There are not ethical problems per se, but there may be considerable question concerning liability of the entity for wrong, incomplete, or even harmful information. The service claims not to "practice medicine," but it certainly presents itself as qualified to give reliable medical opinions.

On the other hand, the organization makes clear that it does not "diagnose," and that it is not an emergency room, and that it will make arrangements with an emergency room or a 911 if that seems appropriate.

The company claims copyright (statutory and common law) on its own online material and name.

Staffing and Training

There are no volunteers. All staff who respond to questions are medical professionals qualified to give advice on medical matters. The site provides no information about any training in responding to questions.

Answering Questions

No information is given about the internal process of assigning questions and answering questions. Medical questions are not referred as such. Users are referred locally if the company feels that there is a medical emergency.

Inventory Control

No information is given about inventory control at the site.

Coping with Demand

One of the company's selling points is the availability of the service when a regular physician is unavailable. The sample questions talk about the regular doctor's being "away for the weekend." But a note at the beginning of the $39 track indicates:

> Please Note: This service will not be available from 6 p.m. Friday evening until 12 midnight Saturday Night. The service will otherwise be available 24 hours a day. We regret any inconvenience this may cause.

This note dilutes the "ever present" tenor of the overall message. Perhaps there is a religious element here, or perhaps this particular period is one of high emergency which this service does not deal with anyway. Whatever the reason, it does seem to depart from the service's mission statement.

There is no discussion of an overload scenario, nor any of a maximum number of questions the company can handle.

Archiving

This seems to be a very new, well-intentioned company which fully expects to have a large and sought-after archive. At this point, however, AnswerDoc invites disappointment because there is no archive. It would have been better to make no mention of archiving or to discuss it only in general terms, rather than to set it up as a choice that does not exist.

There is no discussion, as yet, as to how the archive, when it is in place, will be indexed and referenced.

Quality Control

This would seem to be a most important aspect of this for profit organization, but there is no information about how quality control is maintained at the web site.

As noted, there is no public aspect to quality control. The best mark of quality will be if there is a steady increase in repeat users, which presumably would enhance the bottom line. The quality of the staff is a major aspect of quality control, but there also is no publicly accessible information about how the company selects, or deals with (whether as employees, consultants, contract or commission) medical professionals, and the qualities it looks for in its staff.

Hardware/Software

There does not appear to be a text-only version of the web site. Java script does not appear to be necessary. There is no information about hardware/software support at the web site.

Acknowledgment

The acknowledgment to a question appears to be the answer itself so that it is either immediate (unless Friday at 6 until Saturday midnight) or within 72 hours. There is no indication at the web site of any acknowledgment for free questions.

Question Negotiation

There is question negotiation, depending on the information required by the service in order to answer questions satisfactorily. There is no stated limit as to time. This may not be true for the free question service, since the emphasis seems to be on curtailing the length of question and response of free questions.

Response Guidelines

The response is primarily dictated by which track the user picks. Some questions still remain about responses to fee-based services: Can the user call back with more information, or will that be another $39? In other words, when is the question answered? The same is true for the $29 e-mail: Does the user have the opportunity to clarify the question at no extra charge? When the medical professional fielding the question sees that the question cannot be answered with the information available, or that the user is clearly "barking up the wrong tree", as it were, will the user be expected to face another $29 fee for correcting the original mistake?

This is a natural language service oriented toward individual and original responses to real questions about health. From the sample answers, it seems that documentation (at least any extensive documentation) will probably not be offered, although, if physicians make use of the service, as envisioned, there will probably be more attention given to sources. Thus the type or category of user is a factor may become a factor in documentation guidelines. Policy limitations on sources used by the service will probably follow the copyright guidelines used by the service itself. Hopefully, archives will become a reality so that previous answers can be re-used. Responses are by e-mail and telephone.

Evaluation

There is no mention of evaluation done by the company or of the statistics they maintain and whether they are publicly available.

External Recognition

The site does not announce that it has won any awards.

Comment

I think that the whole concept of online

medical assistance as enunciated in The Medical Edge's mission statement will rest in part on how seriously the company takes its free service. If it is just bait, then it will descend to an online gimmick. If the company energizes its free service and develops its archive as a public resource, then its image will be considerably enhanced and the efficacy of the endeavor will have been established. The company has an admirable vision, and, if it can do reasonably well and maintain and enhance its public service component, everyone will benefit.

ScienceNet: Evaluative Analysis

by Jennifer R. Heiland[1]

Mission, Objectives, Statement of Purpose

The expressive name of this United Kingdom-based service is ScienceNet. It is a free question and answer service on the Internet, located at http://www.sciencenet.org.uk. According to the service's homepage, "ScienceNet is a free science information service staffed by scientists who are experts in explaining complex topics in everyday language." Since this purpose statement is located directly underneath the title "ScienceNet" on the homepage, it is apparent to the user what this service is about. It also refers to itself as "Your One-Stop Science Site" in a banner across the top of its homepage, making it more obvious that this service concentrates on science.

Parameters of Service

No limitations are made on types of questions answered. The scrollable box for a question on the query form is quite large (approximately six inches by three inches), which encourages lengthy questions. Also, there is a statement, "please try to make the question as specific as possible" that would indicate the service answers lengthy questions. On the homepage, the subject categories of questions are given: Archaeology & Palaentology, Biological & Medical Sciences, Chemistry, Environmental Science, Geography & Earth Sciences, Mathematics & Computing, Physics & Computing, Physics & Astronomy, Sociology & Psychology, Technology & Engineering which would give prospective users an idea of what topics this service covers. The inclusion of Archaeology, Sociology, and Psychology is interesting in that these topic areas are not typically considered to be part of "science." The user is asked to search the database before submitting a question.

Identifying the Clients

It is stated on the query form page that the service at times has a large workload and that, since their funding comes from U.K.-based organizations and companies, U.K. users are given priority. The statement is made that, when the workload is less, the service tries to answer questions from everyone. It is not clear to the user whether questions submitted during busy times merely get shunted to the back of the queue or if they are rejected completely. Although U.K. users are given priority, everyone is encouraged to use this service.

Query Form

To submit a question, the user is requested to fill in all the fields given on the query form, although only the return e-mail address is labeled "compulsory." These

[1] As of June 10, the author was unable to speak with anyone at ScienceNet and had received no response to e-mail questions about the service. Some of the conclusions and inferences in this paper may be inaccurate due to missing data.

fields include:

1. Given Name, Family name.
2. Question .
3. Sex.
4. Age.
5. Phone number.
6. Address.
7. Country.
8. Whether the person is studying science and, if so, at what level.
9. Whether the question is related to studies.
10. Whether the user has used services before via e-mail or phone .
11. Where the user heard of the service.
12. Reply e-mail address.

Unfortunately, no provision is made for questioners unable to use forms (i.e., no separate e-mail address for queries is provided), although the phone number for ScienceNet's sister service, Science Line, which answers similar queries via the telephone is give both for U.K. users and the "rest of the world" with hours the hotline is open specified. Questioners are encouraged to "please try to make the question as specific as possible," the only guidance given on how to ask the question. It is also possible to submit a question to ScienceNet via a query form on the BBC web site. The two forms are essentially the same except that on the ScienceNet form it asks whether the question is related to one's studies and on the BBC form the questioner has the option to check three boxes agreeing to one's question, name and/or e-mail address being published. Since none of these except the question is included in the ScienceNet archive it is unclear why these options are needed.

Responsibility to the Clients

Little detail is provided directly to the user about what will happen to his question. It is not evident from the query form page what will happen to the question after it is submitted. No mention of a time frame is given anywhere. On a separate page, which requires some scrolling and two clicks from the homepage, one finds that a multi-disciplinary team of scientists answers questions as well as referring questions to over 2000 scientists worldwide. The question-answering process is not addressed, although user privacy is. According to the query form page, "ScienceNet and Science Line work under a strict code of privacy so none of your details will be sold or passed on to any other organization or company and they will be deleted after your question is answered." No medical/legal disclaimer is made on any of the web pages.

Ease of Use

The link to the query form page is on the lower right corner area of the homepage as an underlined link entitled, "Ask A Question." It is easy to find and once one gets to the query form page, the service states, "this page allows you to send a question to the scientists at ScienceNet." It does ask the user to search the database of previously answered questions prior to submitting a question. It also gives the telephone number of ScienceNet's sister service, Science Line. There is no other option for submitting a question other than the e-mail form (unless one uses the Science Line service, a related, but separate service). The e-mail address of the query form is not evident to the user. Thus, unfortunately, there are no plans made for users with web browsers unable to use forms.

Administration

Various sponsors finance ScienceNet. The primary sponsor is the United Kingdom's National Lottery's Charities Board, followed by the Wellcome Trust, the "largest non-governmental funder of medical research in the United Kingdom,"

according to ScienceNet. There are four lesser sponsors, all of whom are based in the United Kingdom as well as nine other British partners from whom ScienceNet receives non-financial support. The service also receives small amounts of support from twelve different groups such as the BBC and IBM. Since there are so many different groups supporting them, it is doubtful that any one has much influence as to affect objectivity. Many of these various supporters and partners are recognized worldwide for their quality and likely have only positive effects on the quality of ScienceNet. Through the support of its many sponsors, ScienceNet and its sister-service, Science Line, are free services.

Staffing and Training

There are ten staff members, seven of whom would seem to be involved in actually answering questions (on the staff page or on their own personal pages they indicate a subject specialty), although they may all answer questions (it is unclear). Questions are answered by these permanent staff members if they are able (staff members range in level of science education from an undergraduate degree to a Ph.D.) and are referred to over 2000 scientists working in the U.K. and around the world if the permanent staff is unable to answer the question.

The staff has one manager who manages both Science Line and ScienceNet. The service is free. The same people who are answering e-mail questions with ScienceNet staff the phone for Science Line, a free telephone service which "offers members of the public" opportunity to obtain authoritative answers to their scientific queries (http://www.sciencenet.org.uk/intro/aboutscinet.html).

Some of the volunteer experts for the service other than permanent staff come from organizations such as the Science Museum Library, the Natural History Museum, and the Royal Botanic Gardens, Kew, all located in the United Kingdom. People interested in being a volunteer to answer questions with ScienceNet and Science Line are encouraged to apply. An online form is provided which states that one need not be a "Professor" but should have a comprehensive knowledge of an area of science, technology, engineering or medicine (http://www.sciencenet.org.uk/intro/forms/expert.html), which likely means at least an undergraduate degree in a science or related field. The staff answerers have ScienceNet and Science Line as their main responsibilities at this organization. A general impression from reading the various personal homepages is that many of the answerers have other time commitments such as being a graduate student or having other jobs, so being an answerer for ScienceNet and Science Line is evidently only a part-time job.

No mention is made of an expert system being used for question allocation and since most of the questions are answered in-house (approximately 70 percent), the staff are the ones who must decide when they require more in-depth expert assistance. From the phrasing on the web-site and other sources, it is implied that, even when they consult an expert, ScienceNet still serves as an intermediary between questioner and the volunteer answerer.

The general qualifications specified for the volunteers (comprehensive knowledge of an area of science, technology, engineering, or medicine) probably hold true for the regular staff, although since ScienceNet and Science Line are committed to "explaining complex topics in everyday language" then it is likely that this ability is

a prerequisite to being a regular staff member answering questions. Related to this, at least two of the staff members have a Masters of Science in Science Communication, presumably a degree that would cover aspects of making science intelligible to the specialist and non-specialist.

No discussion is made of time commitment, training, or seniority on the web site or in other literature consulted.

No ethical statements are given. Privacy and liability statements are discussed above. There are also no statements warning of possible out-of-date information, especially in medical areas or warning statements/caveats to contact one's doctor, lawyer, etc.

Answering Questions

The apparent process a question goes through from receipt to response is described below. First, a person sends an e-mail query to the ScienceNet via the query form page (http://www.sciencenet.org.uk/intro/forms/askaq.html). ScienceNet receives it, and it receives priority if the questioner is from the United Kingdom. It is specified in other areas, including the Virtual Reference Desk entry for this service, that ScienceNet tries to answer 100 percent of questions asked even if the answer is already present in the database, so presumably, although foreign queries are at the bottom of the list, they will be answered eventually.

It is not clear whether individual staff members answer questions in all areas or only in specific areas of science. However, from the information available concerning Science Line, it is known that staff answer questions outside their area of specialty for that service, so they probably do so as well for ScienceNet. ScienceNet states that questions are answered by a multi-disciplinary team of scientists who staff the service, so it may even be that answers are discussed and answered in a group, especially for confusing questions.

If no one on the ScienceNet service is able to answer the query, then they refer the question to an outside scientist volunteer. It seems that the responses then would be filtered through the staff at ScienceNet to make sure it is clear and understandable for the questioner. This review could be a form of quality control. The answer is then sent to the questioner.

Since phone number is asked for in the e-mail query form, it may be an option for question negotiation (although perhaps not for foreign questioners), but this is not explicitly stated anywhere. No response guidelines are included at the site regarding personalization, personal contacts, time to spend on individual questions, response time, etc. Since the service tries to answer all questions, even ones already existing in the database, canned responses turning away persons due to not matching client base or types of questions answered probably do not exist. However, since the staff get some repeat questions, they make use of their database of previously answered questions to answer these repeat questions. If information is obviously out of date, they no doubt modify the data.

From the responses in the database and articles giving brief statements from satisfied users, it seems that the service gives both instructional and informative answers. From the database it appears that they concentrate more on the information/answer itself rather than on instructions for finding it. None of the answers sampled in the archive included citations to sources.

Since the service's goal is to answer all questions, presumably all communications are eventually acknowledged. ScienceNet, which began in December 1994, answers approximately 400 e-mail questions per week and Science Line has answered 153,000 calls total since its inception in March 1994. It is not specified anywhere how long a user should expect to wait for an answer to one's question. Multiple questions from the same person are permitted.

Inventory Control

No information is available at the site about inventory control.

Coping with Unexpected Demand

No information is known about the policy or procedures for coping with unexpected demand except that when the service is especially busy, non-U.K. questions will be sent to the back of the queue.

No general emergency procedures are evident. However, while I was researching this paper, the search engine for their database of past questions was down, which was indicated in bright red all capital letters at the web site. Unfortunately no dates were given to indicate how long it would be down and/or had been down.

Archiving

In archiving past questions, both questions from ScienceNet and Science Line are included. The archive is publicly accessible and seems to include questions since the beginning of Science Line. In the archive all that is included is the question, question number, and the answer. On the ScienceNet web site, there is no option for the questioner to not have his question included in the archive, but since no identifying information is included in the archive, including a question is presumably not a problem for an individual questioner. The archive of past questions serves both to inform the general public and to serve as an aid for staff who can refer to it for answering questions. It is easily accessible from various pages, most easily from the query form page. The form asks a user to search the database prior to submitting a question.

The database is usually accessible in two ways, a classified browsable arrangement and a search engine. With the search engine down as it is at present, the only way to access the archive is by browsing the classified arrangement. When the search engine is available again, one can search the entire database, or one of nine science subdivisions. The user can specify the number of results, the order (relevance or by date), the level of detail in the description, and the keywords to search on.

The need to use only British spellings and the lack of ability to use Boolean logic to link search keywords are both negative aspects to this search engine. After an answered question has been put in the database, the answer will eventually be re-written at three separate levels of difficulty (primary school, secondary school, and post-secondary school). Two good examples of re-written answers are the answers to "Do other planets other than Earth have volcanoes?" (#p00885a) and "What is an Eclipse?" (#p00921a). These can be viewed by following the path Astronomy and Physics/Earth/ from the ScienceNet homepage. If no level is specified for the question, then it is at the level of difficulty matching the original questioner. Most answers remain in their original state at the present time. It appears that the staff at ScienceNet manage the archive.

Quality Control

No information about quality control is available at the web site.

Hardware/Software

No information about hardware/software is at the web site.

Acknowledgment

There is no indication of acknowledgment to the user on receipt of a question, and it was not possible to verify this by submitting a question.

Question Negotiation

There is no evidence of question negotiation.

Response Guidelines

From the answers in the archive, it appears that the responses to questions are in the form of free writing with no standard format. Answers varied in length and the amount of personal judgment, although some of the questions called for judgment (e.g., whether a vegetarian diet is better or worse for you than a diet that includes meat) which the service provides. The service can provide both informational and instructional answers but tends toward informational. This proclivity may be a response to the sort of questions asked. It would seem that, if a questioner specified wanting instructional information, she would receive it.

No documentation was cited on any of the questions examined, and although this was a small subset of the questions, it did go across various disciplines and sub-disciplines. The level of knowledge of the user is presumably ascertained by the age of the questioner and tone of the question. One of ScienceNet's major goals is to make complex topics understandable in everyday language, so it tries to match the level of the answer to that of the questioner. Answers from prior questions are recycled when possible. No further information regarding response guidelines is available.

Evaluation

No data regarding evaluation are available.

External Recognition

ScienceNet refers to itself and its sister service Science Line as "award winning" but specific awards are not listed at the site.

Comment

Overall, I found this service good. Although it has some faults, such as only being able to submit questions via a form (no e-mail address access for queries), no specified time frame for answering queries, and no citation to sources, it does meet its major goal specified on its home page, to explain "complex topics in everyday language."

References

Radford, Tim. (1994, December 8). The minister, the mints, and the net with a hole big enough to let in a hacker, *The Guardian* (London), p. 10.

Minister gives a boost to Science Line (1997, September). *Cutting Edge*. (Available at http://www.sciencenet.org.uk/slup/CuttingEdge/Sep97/minister.html)

Appendix A. Framework for Analysis of an Electronic Question/Answer Service

Version 1.0 (June 4, 1999)

INPUT: Communications from Client

1. Mission, Objectives, Statement of Purpose

1.1 What is the name of this service? Is the name expressive?

1.2 What is the URL? (For assessment)

1.3 What is the mission/purpose of this service?

1.4 Is the mission/purpose apparent to the user?

2. Parameters of Service (what kinds of questions does the service accept/answer?)

2.1 What types of questions does this service answer? (ex: short answer, long answer, unique)

2.2 Does the service reject questions? If so, what is the basis for rejection? (e.g. outside of scope, time limited)

2.3 What limits exist on the service for an individual user? Consider:
- number of questions per message
- number of questions per user

3. Identifying the Clients

3.1 Who are the intended users? What are their characteristics? (e.g., age, gender, affiliation, location)

4. Query Form

4.1 What information does is required to answer a question/What must the user provide?.(name, e-mail address, phone number, question, sources already used, date needed by, grade)

4.2 What options are available for sending a question? (e-mail, query form, both)

4.3 What guidance is given on how to ask a question? (e.g., examples of questions, complete sentences only)

5. Responsibility to the Clients

5.1 What does the service indicate it will provide to the client?

5.2 Does it inform the client about:
- how soon an answer will be returned?
- who answers the question? (i.e. volunteers, professionals, experts, other users?)
- the types/or specific sources it uses?
For any of these, where and how?

5.3 Does it explain the question-answering process? Where and how?

5.4 Does the service address user privacy? How?

5.5 Is there a statement of liability/ responsibility/appropriate use? (E.g. medical, legal info; accuracy)

5.6 What is included in it?

6. Ease of Use/Instructions to User

6.1 How is the service positioned on the web page in relation to the other services on the site?

6.2 Is it easy or hard to find? (Consider logic of links, name of service.)

6.3 Does it direct you to other sources (i.e. FAQs, search the archives, links to other services)

6.4 Is the destination address apparent to the user of a form query?

6.5 What options (e.g. e-mail, fax, phone) are available for delivery of information? Who selects the mode used and on what basis?

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7. Administration

7.1 How is the service funded?
7.2 How does funding/sponsorship influence quality and/or objectivity?
7.3 Is service fee-based? If so, what is the fee structure and how are the fees collected?
7.4 How is staff organized?
7.5 Who allocates questions to answerers? Is it an expert system or human?
7.6 Are there ethical (e.g., dangerous/criminal questions) statements? Are they easily publicly accessible?
7.7 Are there privacy statements? Are they easily publicly accessible?
7.8 How are copyright, fair-use, selective dissemination of information issues managed?
7.9 Are there liability disclaimers and/or content disclaimers?
7.10 Are there general emergency procedures (e.g., for system failure)?
7.11 To what level are staff involved in policy development?

8. Staffing and Training

8.1 Who will answer questions? (Volunteers/staff)
8.2 What level of expertise is required?
8.3 How are answerers recruited and selected?
8.4 What is expected/average time commitment for answerers?
8.5 What training exists for the answerers?
8.6 Are there seniority benefits and/or increased responsibilities?
8.7 If answers are staff, how does the Q/A service responsibilities fit into their other responsibilities?

9. Answering Questions

9.1 Describe the process a question goes through from receipt to response.
9.2 Are there question negotiation guidelines? Is communication through other media (e.g., phone) an option for negotiation?
9.3 What templates or canned answers exist, if any?
9.4 How much personalization is given in responses?
9.5 Are personal contacts to answerers given or encouraged?
9.6 What guidelines exist about the nature of the response? Consider:
- informational/instructional
- level of difficulty
- degree of detail
9.7 What guidelines exist for response time, if any?
9.8 What is the policy and procedure for referring a question, if any? To whom are referrals made?
9.9 Are sources of answers given?

10. Inventory Control

10.1 How do questions accumulate? Are questions assigned? selected by answerers? queue?
10.2 How are questions prioritized? What criteria are used?
10.3 What guidelines are there for response time for answering questions?
10.4 What is done with questions or clients not matching guidelines?
10.5 Are all communications acknowledged? How quickly?
10.6 What are the guidelines on time limit to be spent on answering individual question, if any?

11. Coping with Unexpected Demand

11.1 Are there scheduled down-times?
11.2 How are down-times and other interruptions of service communicated to users?
11.3 What is done if system is inundated by demand? Are there backup staff, is it closed down, delayed response time, etc.?
11.4 Is there a limit to the number of questions the system can handle? What is that limit?

12. Archiving

12.1 What is the nature archive, if there is one? Consider:
- private/publicly accessible. If private, accessible to whom?
- kinds of information included
- length of time materials are archived
- purpose of archive
- degree of anonymity maintained

12.2 Are users allowed to specify if they do not want their question archived?

12.3 How easily accessible is archive if it is public?

12.4 Is archived indexed and/or searchable? If so, how?

12.5 Is archive selective? By date, or content?

12.6 Is there a FAQ? Is it indexed or searchable?

12.7 How is FAQ related to archive?

12.8 Who manages the archive?

13. Quality Control

13.1 How is quality control maintained, if there are procedures? Consider, for example, using standard resources for answering questions (written, people, electronic)?

13.2 What happens if quality is considered inadequate?

13.3 Is there a review process for new answerers, for answers?

14. Hardware/software

14.1 Describe the hardware/software used by this system.

OUTPUT: Communications to Client

15. Acknowledgment

15.1 What kind of acknowledgment is sent when a query is received, if any?

15.2 How soon is it sent?

15.3 What information does it contain? For example,
- restatement of the question
- expected response time

15.4 Is the acknowledgment generated automatically or with human input?

16. Question Negotiation

16.1 If the question requires clarification, what are the guidelines for clarification? Consider:
- the number of messages needed to clarify the question
- modes to be used for communicating
- any limitations on time

17. Response Guidelines

17.1 How is the response generated: form, free writing, or combination of both?

17.2 Does the service use standard language to respond in full or part to questions? If so, solicit examples. This allows you to see the kinds of questions for which this is available.

17.3 What are the limitations or constraints on the answers? Consider issues of
- brevity
- fact/judgment
- for bibliographic citations: number and format
- instruction, actual information or both. If the latter, what factors influence the judgment about which to provide?

17.4 What documentation accompanies the answer, if any?

17.5 How does the service respond to:
- ineligible questioners
- inappropriate questions

17.6 How does the service take into consideration factors that may influence choice of answer, e.g. level of knowledge or language skills of user?

17.7 What policy restrictions are there on the sources which can be used to answer the questions, if any?

17.8 Are previous answers available and searchable so that answers can be reused or adapted for other questions?

17.9 What format does the response take: direct e-mail or bulletin board posting?
17.10 How does the questioner request clarification of the answer?
17.11 How does the client request follow-up?
17.12 Is there a policy on response time? What is considered the range of acceptable response times?
17.13 Is there a protocol for determining priority in processing answers? If so, what is it?
17.14 What are the policies regarding attaching or referring to non-textual materials?

18. Evaluation

18.1 Is there a formal evaluation procedure in place?
18.2 What is the nature of that procedure?
18.3 How frequently does it occur?
18.4 What measures of performance are used? Consider, for example:
- user satisfaction
- accuracy
- time lag
- response rate (percentage of questions answered)

18.5 Is there follow-up with the user? If so, in every case or in selected cases?
18.6 How does the service evaluate the quality of the answers provided?
18.7 Does the service meet mission goals?
18.8 What statistics are maintained by the service regularly? How are they used?

19. External recognition

19.1 What awards has this site received?
19.2 What articles are written about it?